RESOURCE CONSERVATION AND RECOVERY ACT
AND
MISSOURI HAZARDOUS WASTE MANAGEMENT LAW
COMPLIANCE EVALUATION INSPECTION REPORT

FACILITY

The Doe Run Company
Buick Resource Recovery Facility
Highway KK
Boss, Missouri 65440
(314) 626-3406

EPA ID: MODO59200089
MO Generator ID: 03242
Resource Recovery ID: RR0344

PARTICIPANTS

Department of Natural Resources:

Mr. Albert Wampler
Environmental Engineer
Southeast Regional Office

The Doe Run Company:

Mr. Kenneth Buckley
General Manager

Mr. Michael Kearney
Health & Environmental Manager

Mr. Vince Wisdom
Health & Environmental Technician

Mr. James Moenster
Technical Services Manager

Mr. Clifton W. Gray
Facility Manager

Mr. Johnny St. John
Receiving/Shipping Coordinator

INTRODUCTION

On June 30, 1992, a representative of the Missouri Department of Natural Resources conducted an inspection at The Doe Run Company, Buick Resource Recycling Facility located off Highway KK near Boss, Missouri. This inspection was conducted to determine compliance of the facility with the Resource Conservation and Recovery Act, The Missouri Hazardous Waste Management Law and applicable state and federal regulations promulgated thereunder. Authority to conduct such inspections has been granted under Section 260.375(9) and 260.377 RSMo. The facility was inspected per RCRA permit conditions, MODO59200089

Mr. Michael Kearney, Mr. Clifton Gray, Mr. Johnny St. John, Mr. Vince Wisdom, and Mr. Jim Moenster of The Doe Run Company accompanied Mr. Albert R. Wampler of the Southeast Regional Office on a visual facility inspection. Mr. Kenneth Buckley of The Doe Run Company joined in the closing discussion where questions were addressed.

This inspection and discussion pertained to the acid and water treatment system, palletized storage and flooring, drum storage, battery bunker and paste storage areas, and the leachate monitoring system. Other facility requirements, documents and records that The Doe Run Company must maintain, were reviewed and discussed.

The Buick Resource Recycling Facility was in operation at the time of the inspection. The palletized battery storage and drum storage areas contained lead bearing wastes in addition to batteries (both industrial and automotive).

In the opening conference, facility representatives were informed of the Department's inspection procedure and the need for the taking of photographs to be used to document the inspection. The photographs have been attached as an integral part of this report (Attachment 1). The company's right to confidentiality was discussed prior to the inspection tour.

FACILITY DESCRIPTION

The Doe Run Company, Buick Resource Recycling Facility is an expansion of the existing facility, a primary lead smelter and refinery that began operation in 1968. The Buick Resource Recycling Facility processes lead batteries and lead bearing materials into marketable products. Spent lead-acid, automotive batteries are a major feed material. Industrial batteries are a feed source as well as lead drosses, fumes, and metallic cuttings and punchings. In addition, other battery plant manufacturing scrap such as scrap plates (formed and unformed), battery oxides, battery plant bag house dust, sump muds, pot drosses (antimony and calcium), and battery plant wastewater treatment sludge are received.

The Doe Run Company, Buick Resource Recycling Facility and primary smelter operation are located on about 643 contiguous acres of which the Buick Resource Recycling Facility occupies 145 acres. The geographic location is near Boss, MO in Iron County, off Highway KK, situated about two (2) miles southwest of Bixby, MO.

The facility's main processing building complex is the state-of-the-art breaking, desulfurization, and crystallization (BDC) building. Here, the batteries are crushed by hammermill, components separated, the lead sulfate paste sent to a reaction tank where sodium carbonate combines to form lead carbonate and solution of sodium sulfate. The paste is then filtered and moved to the paste storage area for subsequent transport to the reverberatory furnace. The liquid from the paste is neutralized with battery acid and transported to a crystallization tank for conversion to sodium sulfate crystals, a marketable detergent grade product. Other battery components such as separators, ebonite, battery grids, poles and waste materials are stored in the bunkers. Polypropylene is recovered during facility operations , collected in trailers and subsequently marketed.

Once the paste reaches the reverberatory furnace the secondary smelting process begins. The lead bullion from the furnace is refined and the slag tapped and sent to the blast furnace for further smelting. All process gases are water quenched and filtered in the baghouse unit. Dust from the baghouse is recycled to the furnace. A detailed process description, facility description, and waste description are found as attachments to this report (Attachment 2, 3, and 4). Also, the facility's initial project description may be found as Attachment 5.

Permitted units of the facility are the battery receiving bunkers, paste waste pile storage, whole battery and container storage areas, components storage areas and storage areas for these materials leading to the processing furnaces. The facility's operating RCRA Permit Number is MODO59200089.

The Doe Run facility resource recovery operation is classified as R2 with the last certification date April 3, 1992, with a certification number of RR0344. The facility was certified to receive and process only D008 an K069 wastes at the date of the inspection (Attachment 6).

The Doe Run Company Resource Recycling Division, Buick Facility, as previously stated is operating under RCRA Permit MOD059200089. Certain modifications of the existing permit have been requested by the facility. In a letter from the Buick Resource Recycling facility (Buick) dated April 30, 1992, (Attachment 7), a Class 1 permit modification was requested to allow Buick to receive, store and treat additional wastes. Those wastes were D008/D004, D008/D006, K002, K003, K046, and D002 wastes in addition to already permitted D008 and K069 wastes. Departmental approval was granted in a July 15, 1992, letter (Attachment 8) to Doe Run. Approval did not grant additional volumes, capacities or weights, but these wastes were to be included in the capacities allowed in the original permit (Attachment 8a).

The D008/D004 waste are comprised of (lead/arsenic), D008/D006 (lead/cadmium), K002 (lead chromate paint pigment sludge), K003 (lead molybdate paint pigment sludge), and K046 (sludges from manufacturing of lead initiating compounds). D002 is characteristically corrosive bearing waste, battery acids.

In a May 5, 1992, letter (Attachment 9) from Doe Run to the Department of Natural Resources (DNR), a request was made for a Class 1 modification to the permit to reflect the on-site operation of "tanks" rather than the operation of "waste piles".

Documentation dated July 15, 1992, (Attachment 10), from the Department to the Buick facility denied the modification due to the Environmental Protection Agency proposing a change in the nomenclature and designation of waste pile units to the term "containment building." Resubmission of the modification was suggested at a later date.

A Class 1 modification was requested by Doe Run in a letter dated May 21, 1992, (Attachment 11), requesting the construction of a drum shredding device and container stacking system. Review of this request by the Environmental Protection Agency (EPA), (letter dated July 24, 1992), determined that such modifications should be classified as a Class 3 modification and therefore the drum shredding device would perform physical treatment of the hazardous waste in a miscellaneous unit, and thus subject to regulation under 40 CFR 264, Subpart X (Attachment 12). The State of Missouri is not yet authorized to administer provisions of Subpart X, thus EPA elected to make the final determination.

Doe Run was requested to cease construction or operation of the drum shredder and request, if Doe Run thought the unit met criteria, a temporary authorization as specified in 40 CFR 270.42(e)(2)(i)(B), and explain how the criteria could be met.

In a letter to EPA, dated July 28, 1992, (Attachment 13), temporary authorization was requested by Doe Run as authorized by 40 CFR 270.42(e).

Per the third quarter quarterly report (Attachment 14), required by special RCRA permit condition VII.D.1., paragraph 5, The Doe Run Company indicated that temporary authorization was received August 10, 1992, and that Fluor-Daniel Engineering in Greenville, South Carolina was given verbal authorization on August 18th. Construction on the drum shredding unit was completed on September 28, 1992.

In letters dated July 24, & 27, 1992, (Attachment 15), Doe Run requested a Class 2 modification for a case by case variance from LDR rules published June 26, 1992, in the Federal Register. Due to "containment building" proposed nomenclature changes, Flour-Daniel is proceeding with the permit Class 2 modification procedures.

UNSATISFACTORY FEATURES

The following unsatisfactory features list the regulatory or statutory provisions which The Doe Run Company Resource Recycling Division, Buick Facility, were in violation at the time of the inspection. All 40 CFR (Code of Federal Regulations) citations have been adopted by reference in the Missouri Hazardous Waste Management Law and Regulations.

1. The drum storage area contained drums labeled as hazardous waste which were not closed, 40 CFR 264.173(a).

Drums labeled as hazardous waste were found to not be closed or not having the lids fastened securely. Note: Photograph #1, #2, #3, #5, #6, and #7.

At least eight (8) drums were observed with no lids. Plastic was used as covering on two (2) drums. Three (3) or four (4) drums did not have the lids closed tight. The lids were on, but representatives said they were opened for analysis and not securely re-fastened. One(1) drum was observed damaged to the extent a lid could not be fitted and closed (Photograph #3). Drums were stored in a manner limiting the complete inspection of all drums to determine if others were open.

2. Failure to maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, and decontamination equipment to any area of facility operation in an emergency 40 CFR 264.35, General Permit Condition XIII C. Note: Photographs #4, #5, #6, #7, #8, and #9. Waste was stored in a manner not allowing for inspection of containers or free movement among containers.

As depicted by Photographs #2, #4, #5, #6, #7, many industrial batteries and drums were stored so close together that it was impossible to visually inspect for leaks, open drums, or type of waste being accepted. Batteries were observed leaking and lying on the floor near the battery bunker wall (Photograph #11). Liquid had accumulated from spills and/or wash down (Photograph #12). The acid's effect on the concrete was noticeable adjacent to the floor drain to the bunker (Photograph #12). It is vitally important the flooring be kept in good repair.

In general, the palletized storage area was found to be unorganized with both stored, labeled hazardous waste and non-hazardous waste co-mingled in such a manner that it was not possible to inspect all areas. This leaves doubt that documented inspections of the palletized storage area could have been made as the inspector was unable to inspect a large number of drums and stored batteries for leaks or closed and damaged containers.

3. Failure to make an amendment to the contingency plan due to a change in the design and operation of the facility. Amendments to the contingency plan are subject to applicable permit modification requirement of 40 CSR 270 Subpart D, 10 CSR 25-7.270(2)(D) and 10 CSR 25-8. per permit condition VIII C. 2.

The facility has changed the design of the palletized storage area by cutting three (3) new openings in the palletized storage area. These openings are to be associated with the new drum shredding unit. the most recent copy of the facility contingency plan does not indicate that changes were made (October 14, 1992).

4. Failure to begin floor repairs on the flooring surface of the battery bunker or the paste storage areas within one (1) day for a leak generating more than one (1) liter per day of fluid in the leachate detection system and notify the Southeast Regional Office of the repairs made within seven (7) days. Special permit condition III B.2.

The Breaking, Desulfurization and crystallization (BDC) building is equipped with a specialized flooring and leachate detection system. On the date of the inspection, June 30, 1992, the system was dripping liquid from the lowest level pipe. Notification of this leak was received by this office in a letter dated May 15, 1992, (Attachment 16). At that time, 6.26 liters per day were leaking from the system. No apparent floor repairs were on going on the inspection date, fifty-two (52) days later. Notification has not been received at the Southeast Regional office of the on going repairs or if the leak point source has been located and repaired.

It is requested that The Doe Run Company Resource Recycling Division, Buick. Provide specific written documentation to the Department (both regional and central office) in regard to the leak that was detected as stated in the May 15, 1992, letter (Attachment 16) to the Southeast Regional Office. Documentation should be submitted showing the sequence of events which The Doe Run Company Buick facility initiated after detection of the leak. This documentation should include the investigative procedure taken to detect the leak source and a detailed schedule of all repairs (completed and/or to be completed) to the bunker floor. The current status of the leak, if not repaired, showing how many liters per day, pH, specific conductance, etc., should be submitted with the above documentation in addition to the specific location(s) and suspected cause for the leak.

5. The Doe Run Company Resource Recycling Division (Buick) accepted and retained hazardous waste on-site which was not authorized by RCRA Permit MOD059200089 or Resource Recovery Certification RR0344 allowing for only D008 and K069 wastes. Special permit conditions IIA and IIIA.

In an April 30, 1992, letter to Mr. Nicholas A. DiPasquale, Missouri Department of Natural Resources, from Mr. Kenneth R. Buckley, Doe Run Company General Manager, (Attachment 7), a request was made that a Class 1 modification to the RCRA permit be allowed to accept D008/D004 (Lead, Arsenic), D008/D006 (Lead, Cadmium), K002, K003, K046, and D002 wastes. On the date of this letter, the facility had received and accepted manifested D008/D004 and D006 waste. These wastes were retained on-site prior to written Departmental approval given in the July 15, 1992, letter to The Doe Run Company (Attachment #8).

COMMENTS

At the time of the inspection, the facility was open burning wastes on-site. The open burning of trade waste is a violation of Missouri Air Regulations unless authorized by an open burning permit. The Doe Run Company Resource Recycling Division, Buick had not been issued an open burning permit allowing for the burning of trade waste. This issue has been brought to the attention of the Air Pollution Control Program for further action.

Another area which needs to be brought to Doe Run's attention is that in regard to the communication cable that was on-site at the time of the inspection. Large bundles of vinyl and/or rubber coated cable was stacked outside the cable stripping operation. The vinyl and/or rubber covering was observed bundled and stored on-site as depicted by photographs #56, #57, #58, and #59. One facility representative stated, when asked, that this covering was introduced into the blast furnace. This practice would be in possible violation of the Air Pollution Control Program's permit issued to The Doe Run Company, Buick facility. Mr. Glen Gearhart of the Southeast Regional Office was notified for follow-up, should further action be deemed necessary.

Submitted By:

Albert R. Wampler

Albert R. Wampler
Environmental Engineer II

Approved By:

James A Burris

James A. Burris, P.E.
Environmental Engineer III

ARW/JAB/tk

Attachments

MISSOURI DEPARTMENT OF NATURAL RESOURCES

2180

Recorded

NOTICE OF VIOLATION PURSUANT TO REQUIREMENTS OF THE MISSOURI HAZARDOUS WASTE MANAGEMENT LAW, RULES AND REGULATIONS

FACILITY NAME			
THE DOE RUN COMPANY - BUICK RESOURCE RECYCLING DIVISION			
ADDRESS	CITY	STATE	ZIP CODE
HIGHWAY KK	BOSS	MO	65440
MISSOURI ID NUMBER	DATE OF INSPECTION		
03242	JUNE 30, 1992		

During an inspection and/or a review of information or documentation completed this date to determine compliance with the requirements of the Missouri Hazardous Waste Management Law, Section 260.350 - 260.550 RSMo, and/or the Rules and Regulations 10 CSR 25 the following violations were identified. The 40/49 CFR regulations cited below have been adopted by reference in the Missouri Hazardous Waste Regulations.

CITATION	DESCRIPTION OF VIOLATION
40 CFR 264.173 (a)	FAILURE TO HAVE DRUMS OF HAZARDOUS WASTE CLOSED DURING STORAGE
GENERAL PERMIT CONDITION 40 CFR 264.35 XIII C.	FAILURE TO MAINTAIN ADEQUATE AISLE SPACE ALLOWING FOR UNOBSTRUCTED MOVEMENT OF PERSONNEL, FIRE PROTECTION/DECONTAMINATION EQUIPMENT TO ANY AREA OF FACILITY OPERATIONS (PALLETIZED STORAGE AREA)
SPECIAL PERMIT CONDITIONS II A AND III A.	ACCEPTANCE OF WASTE NOT PERMITTED BY RCRA PERMIT MOD059200089 OR RESOURCE RECOVERY CERTIFICATION AR0344 (D004-D006)
PERMIT CONDITION XIII C.2. 40 CFR 270 SUBPART D 10CSR 25-7.270(9)(A)	(STRUCTURAL) (OPERATIONAL) FAILURE TO AMEND CONTINGENCY PLAN DUE TO FACILITY DESIGN CHANGE
SPECIAL PERMIT CONDITION III B.2	(1) ONE LITER/DAY * (BEGIN WITHIN ONE(1) DAY) OF LEAK GREATER THAN FAILURE TO MAKE * FLOOR REPAIRS RESULTANT TO A LEAK FROM THE LEACHATE SYSTEM AND NOTIFY THE SOUTHEAST REGIONAL OFFICE OF THOSE REPAIRS WITHIN SEVEN (7) DAYS.

This information is provided to call your attention to those areas of noncompliance at the earliest possible time. This notice does not constitute a compliance order issued pursuant to Section 260.410, RSMo and may not be a complete listing of all violations which may be identified as a result of this inspection.

The owner/operator is hereby requested to submit in writing within 15 days of receipt of this notice a description of all corrective actions taken and/or a schedule for completion of necessary corrective actions to be taken to: Chief, Enforcement Section, Waste Management Program, Department of Natural Resources, P.O. Box 176, Jefferson City, MO 65102 with a copy to the Administrator, SOUTHEAST Regional Office.

The corrective actions taken within 15 days of this notice will be considered in determining whether enforcement action, including the assessment of civil penalties, should be initiated.

If you have any questions on this notice or wish to discuss your response, you may call R. BRUCE MARTIN at 314-751-3176 or TOM JUDGE at 314-751-3176.

Signature of Preparer Albert R. Wampler Date OCTOBER 28, 1992

The undersigned person hereby acknowledges that he/she received a copy of this Notice and has read same.

SIGNATURE	PRINTED NAME
* CERTIFIED MAIL	
TITLE	DATE

MO 780-1119 (5-87)

DISTRIBUTION: **WHITE**-FACILITY **CANARY**-REGIONAL OFFICE **PINK**-CENTRAL OFFICE

3.500 Iron County - H.W.
The Doe Run Company
Resource Recycling Division
Buick Facility

JOHN ASHCROFT
Governor

RON KUCERA
Acting Director

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Division of Energy
Division of Environmental Quality
Division of Geology and Land Survey
Division of Management Services
Division of Parks, Recreation, and Historic Preservation

MEMORANDUM

DATE: November 20, 1992

TO: Mr. Arthur Groner, Section Chief, Hazardous Waste Enforcement Unit, Hazardous Waste Program

THRU: Mr. Gary L. Gaines, P.E., Regional Director, SERO

FROM: Mr. Albert R. Wampler, Environmental Engineer, Southeast Regional Office

SUBJECT: The Doe Run Company, Resource Recycling Division, Buick Facility (RCRA Inspection)

Attached is a RCRA report on inspection for The Doe Run Company, Resource Recycling Division, Buick Facility, located near Bixby, Missouri. The facility has been determined to be in violation of specific permit conditions.

ARW/tk

Attachments

cc: John Young, Deputy Director, DEQ

3.500 Iron Co. - HW
The Doe Run Company
Resource Recycling Division
Buick Facility

JOHN ASHCROFT
Governor

RON KUCERA
Acting Director

NOV Recorded

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
Southeast Regional Office
1948 Lester St., P.O. Box 1420 Poplar Bluff, MO 63901 314-686-9750

November 20, 1992

Certified Mail: P 119 062 662
L.O.W. 92-SE-006

Mr. W. Mike Kearney
Health and Environmental Manager
The Doe Run Company
Highway KK
Boss, MO 65440

Dear Mr. Kearney:

Enclosed is a report on inspection of The Doe Run company, Resource Recycling Division (Buick Facility), conducted on June 30, 1992. This inspection was made to determine if The Doe Run Company was in compliance with the environmental laws of the State of Missouri and rules of the Department of Natural Resources and United States Environmental Protection Agency pertaining to hazardous waste management. The contents of the report are believed to be self-explanatory. If, however, you have any questions concerning any part of the report, please call Albert R. Wampler at our Southeast Regional Office, 314-686-9750.

During this inspection, violations of Missouri's Hazardous Waste Management Law and regulations were found. It is our purpose by this report and issuance of Notice of Violation Number 2180, dated October 28, 1992, to notify you of these apparent violations and to persuade you to take steps to eliminate them as rapidly as possible.

The Department of Natural Resources strongly urges that the unsatisfactory features listed in this report be given your immediate attention. The Doe Run Company should address each unsatisfactory feature, implementing the necessary corrective action to return your facility to compliance. Your facility should submit copies of documentation outlining all corrective measures that have been taken to eliminate the violations to the Department of Natural Resources, Hazardous Waste Enforcement Program, Attn: Mr. Bruce Martin, Chief, Hazardous Waste Enforcement Unit, P.O. Box 176, Jefferson City, MO 65102, and to the Department of Natural Resources, Regional Director, Southeast Regional Office, P.O. Box 1420, Poplar Bluff, MO 63901.

Missouri State Parks

Recycled Paper

Compliance should be completed within thirty (30) days of the receipt of this report, and documentation of compliance should be mailed to each above mentioned office within thirty (30) days of receipt of this report.

A follow-up investigation will be conducted by staff of the Department of Natural Resources to determine if corrective measures have been successful in achieving compliance.

Sincerely,

Gary L. Gaines, P.E.
Regional Director

GLG/ARW/tk

Enclosures

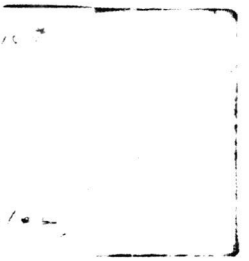
cc: R. Bruce Martin, Chief, Hazardous Waste Enforcement Unit, Hazardous Waste Management Program

ATTACHMENT 1

RESTRICTED

#1. OPEN CONTAINERS IN PALLETIZED STORAGE AREA LABELED AS HAZARDOUS WASTE TAKEN JUNE 30, 1992 BY A.R. WAMPLER SERV. DOE RUN COMPANY, BOSS FACILITY

#2. CONTAINERS OF HAZARDOUS WASTE LABELED AND NOT CLOSED, STORED IN PALLETIZED STORAGE AREA, POLYETHYLENE LINERS ON BLACK DRUMS. TAKEN JUNE 30, 1992, BY A.R. WAMPLER, SERV. DOE RUN COMPANY BOSS FACILITY



#3. OPEN, DENTED DRUMS OF WASTE IN PALLETIZED STORAGE AREA. HAZARDOUS WASTE LABEL ON YELLOW DRUM WAS OBSERVED. DRUM HAS NO CLOSURE LID TAKEN JUNE 30, 1992 BY A.R. WAMPLER SERV. THE DOE RUN COMPANY, BOSS FACILITY

15

#4 INDUSTRIAL BATTERIES IN PALLETIZED STORAGE AREA. NOTE DISARRAY OF BATTERIES LITERALLY IMPOSSIBLE TO [illegible] OF BATTERIES TO DETECT [illegible] DAMAGED CASES. TAKEN JUNE 30, 1992 BY A.R. WAMPLER SERO

THE DOE RUN COMPANY, BUICK FACILITY

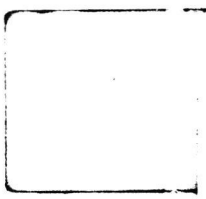
#5 INDUSTRIAL BATTERY AND DRUM STORAGE IN PALLETIZED STORAGE AREA. NOTE LID OPENING ON BLACK DRUM LABELED AS HAZARDOUS WASTE. ALSO, STORAGE WAS IN A MANNER NOT ALLOWING INSPECTION OF STORED WASTE. TAKEN JUNE 30, 1992 BY A.R. WAMPLER SERO

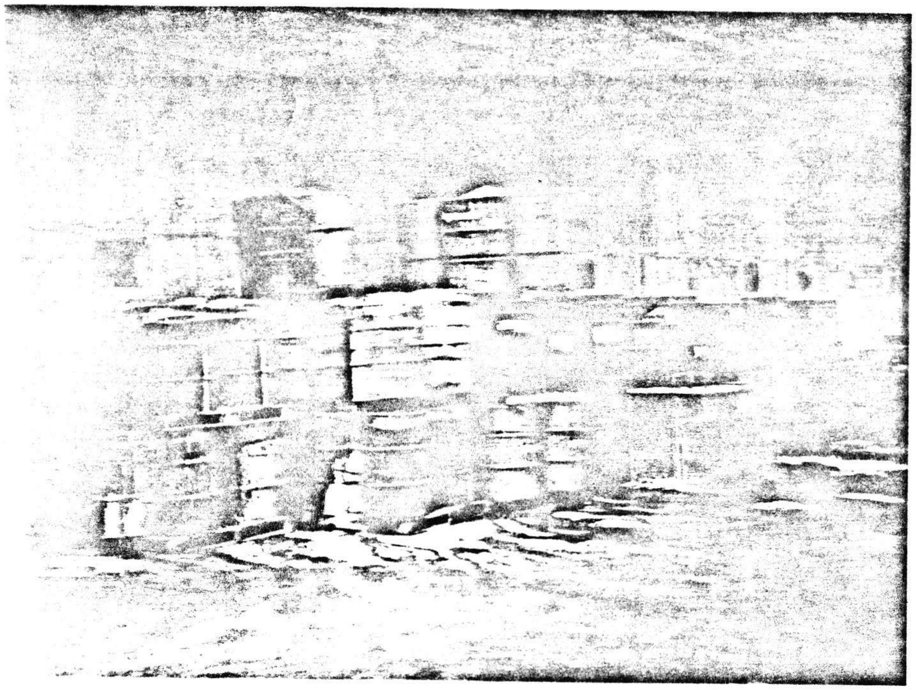
THE DOE RUN Company, Buick facility

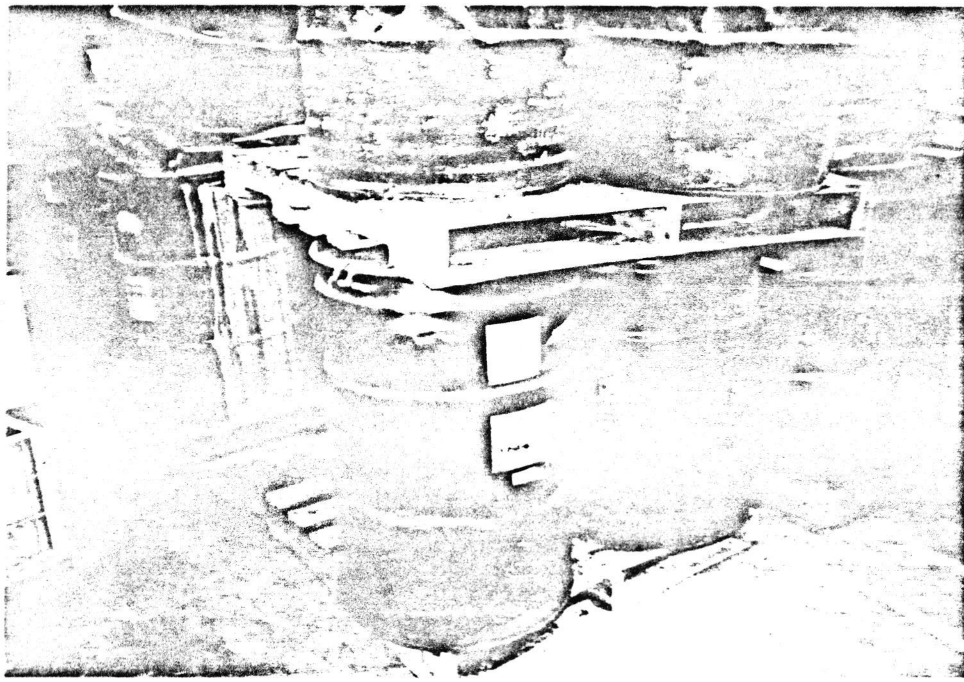
#6 MIXED DRUMS OF HAZARDOUS AND NON-HAZARDOUS WASTE. IMPOSSIBLE TO INSPECT DUE TO INADEQUATE AISLE SPACE. PALLETIZED STORAGE AREA TAKEN June 30, 1992 BY A.R. WAMPLER SERO

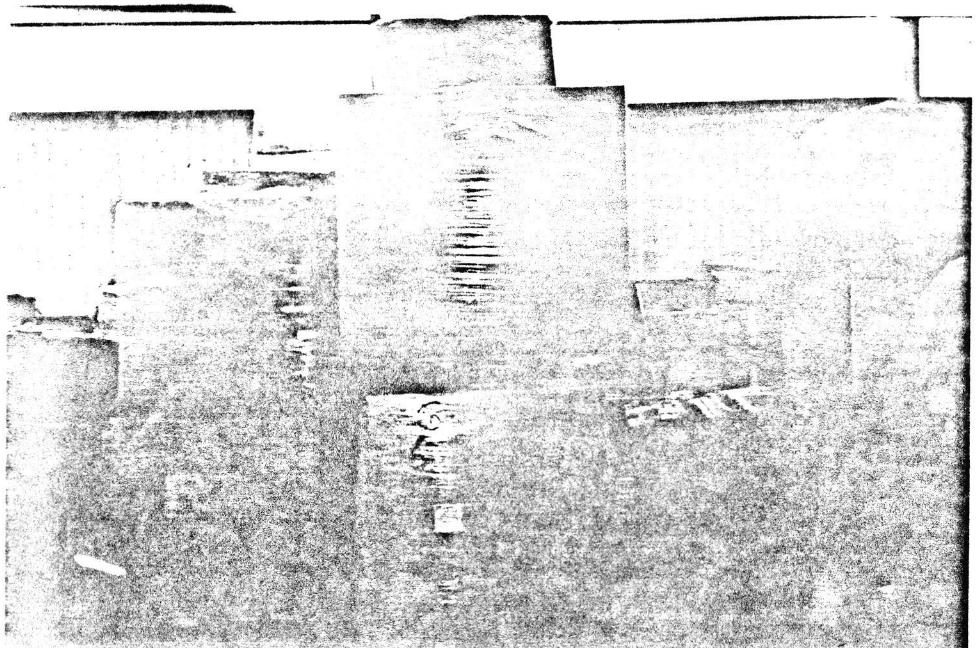
THE DOE RUN COMPANY, BUICK FACILITY

NOTE OPEN DRUMS. ONE HAS ARROWED HAZARDOUS WASTE LABEL.





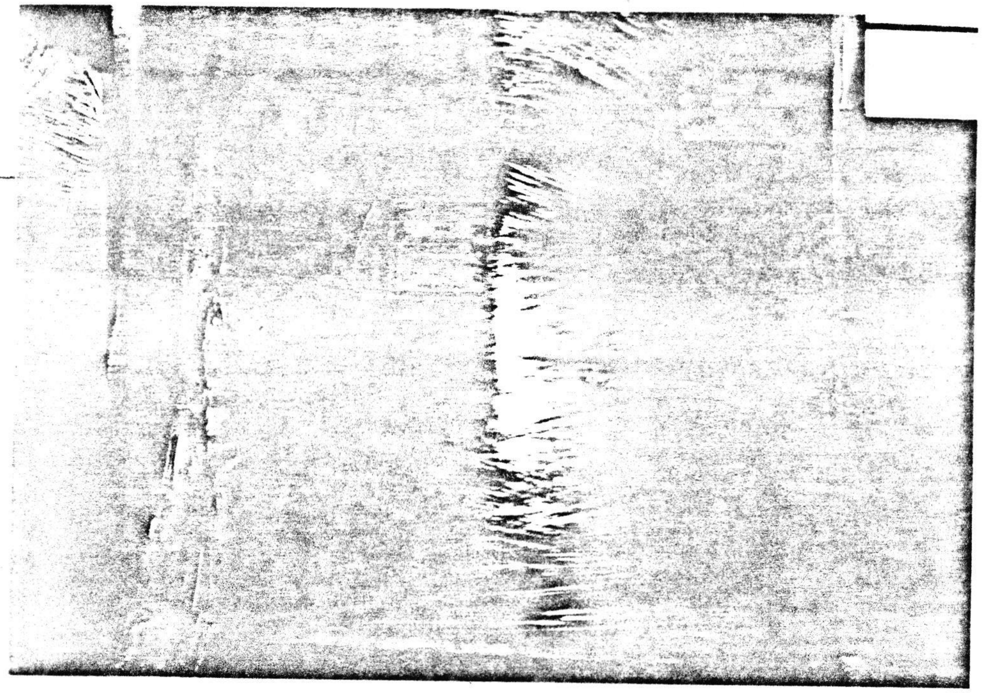


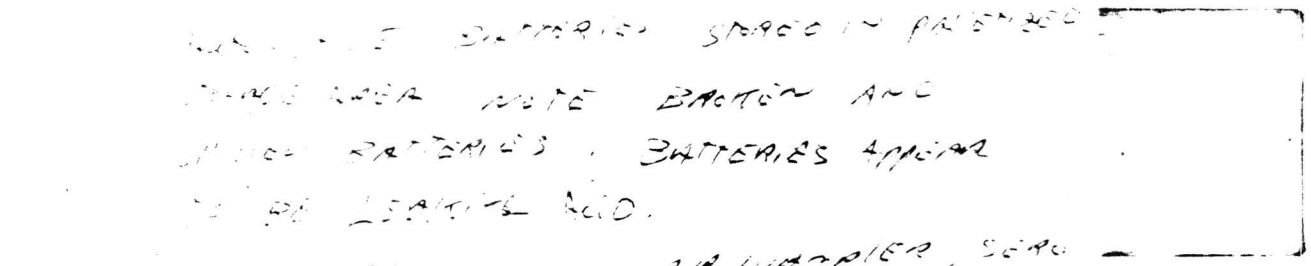


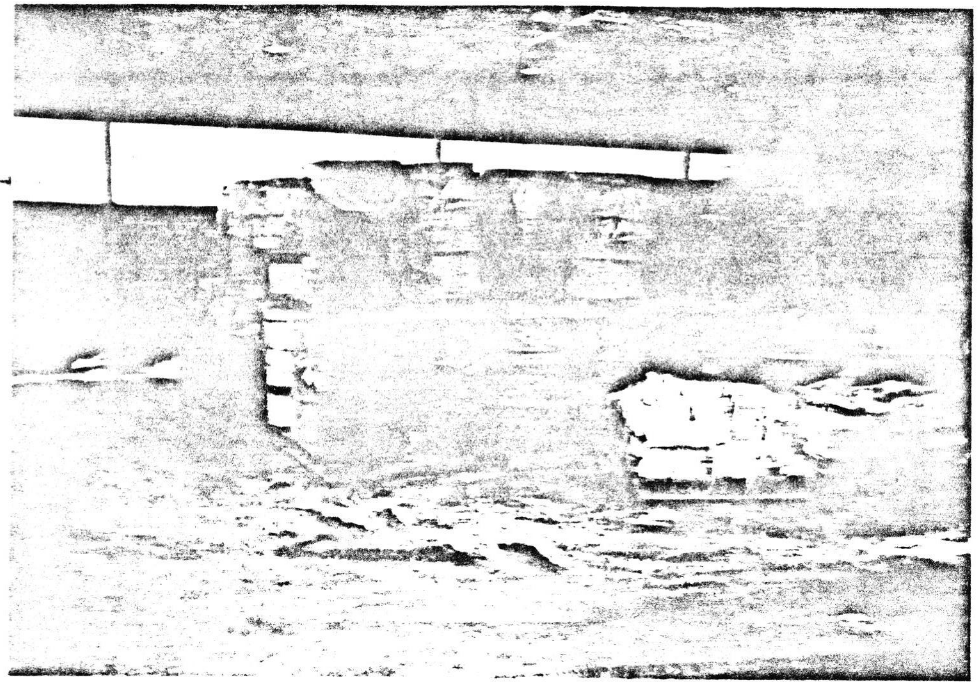
#7 CONTAINERS OF STORED HAZARDOUS WASTE IN PALLETIZED STORAGE AREA. SOME CONTAINER HAD NOT LIDS AND WERE OPEN. SOME CLOSED DRUMS HAD [illegible] DENTED LIDS AND TOP RIMS [illegible] BY [illegible] RR WAMPLER [illegible] THE DOE RUN COMPANY BUICK DIVISION

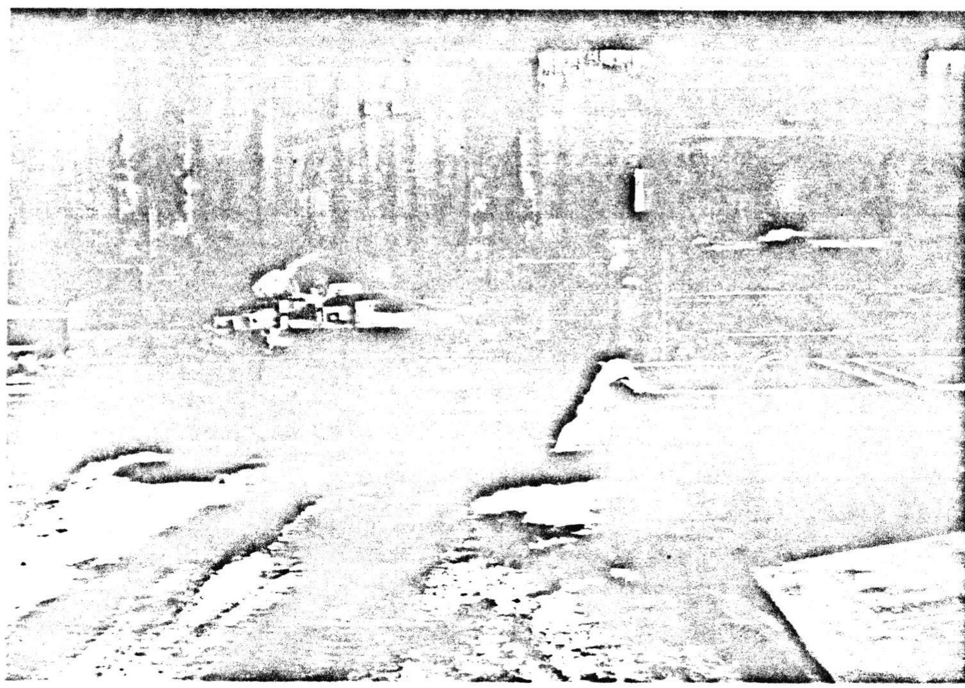
#8 PALLETIZED STORAGE AREA HAZARDOUS WASTE DRUMS LIMITED AISLE SPACE TAKEN RR. WAMPLER, SEAO THE DOE RUN COMPANY BUICK DIVISION

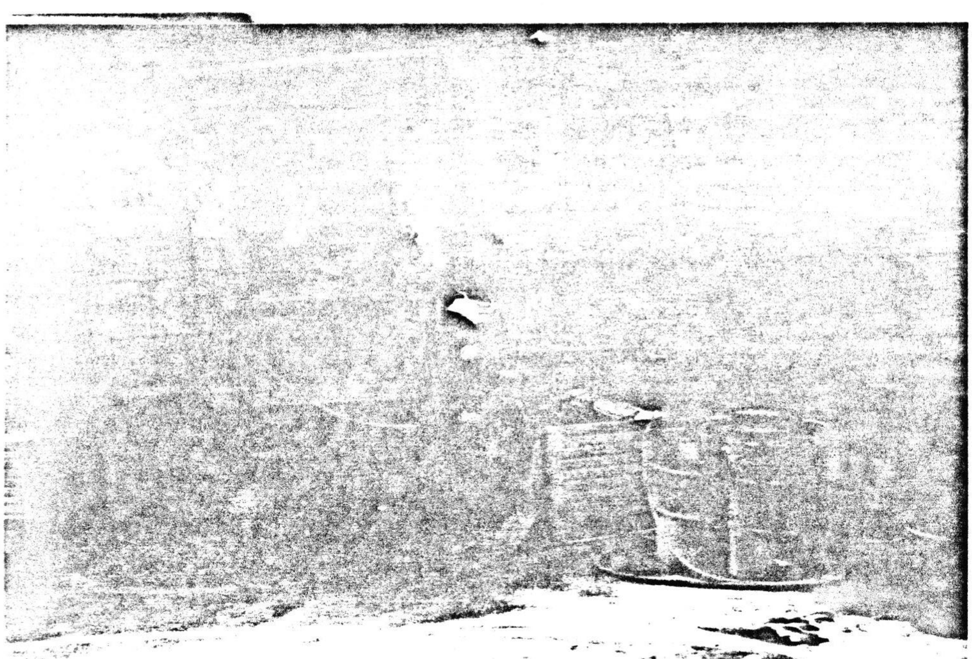
#9 CARDBOARD BOXES LABELED AS HAZARDOUS WASTE SAID TO CONTAIN LEAD CONTAMINATED CLOTHING GLOVES ETC. MAY BE CLASSIFIED AS WASTE NOT MEETING RESOURCE RECOVERY GUIDELINE AND POSSIBLE "TRASH" INCINERATION.
TAKEN 6/30/92 BY R.R.WAMPLER SEAO
THE DOE RUN COMPANY BUICK DIVISION
PALLETIZED STORAGE AREA.











OPEN DRUMS OF NON-HAZARDOUS WASTE
[illegible] CONTAIN WHAT APPEARS TO BE
[illegible] SEPARATOR PLATES (NOT SHOWN)
[illegible] BATTERY DUMP TO
[illegible]
[illegible]

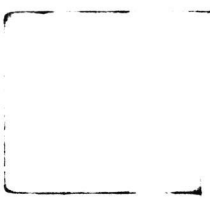
[illegible]

BATTERY DUMP AREA [illegible] SPILLAGE
[illegible] STORAGE
AREA, ABSORBENT ON FLOOR
TAKEN 6/30/92 BY A. ALEXANDER, SCRC
THE DOE RUN COMPANY, BUICK FACILITY

AREA IN PALLETIZED STORAGE AREA
WHERE DOE RUN WORKER WAS
SHOVELING A "SUMP MUD" INTO
BUNKER OPENING. FLOOR WAS
SATURATED WITH WATER. THE
WASTE CONTAINED FREE LIQUIDS (WATER)
TAKEN 6/30/92 BY A. ALEXANDER SCRC
THE DOE RUN COMPANY, BUICK FACILITY

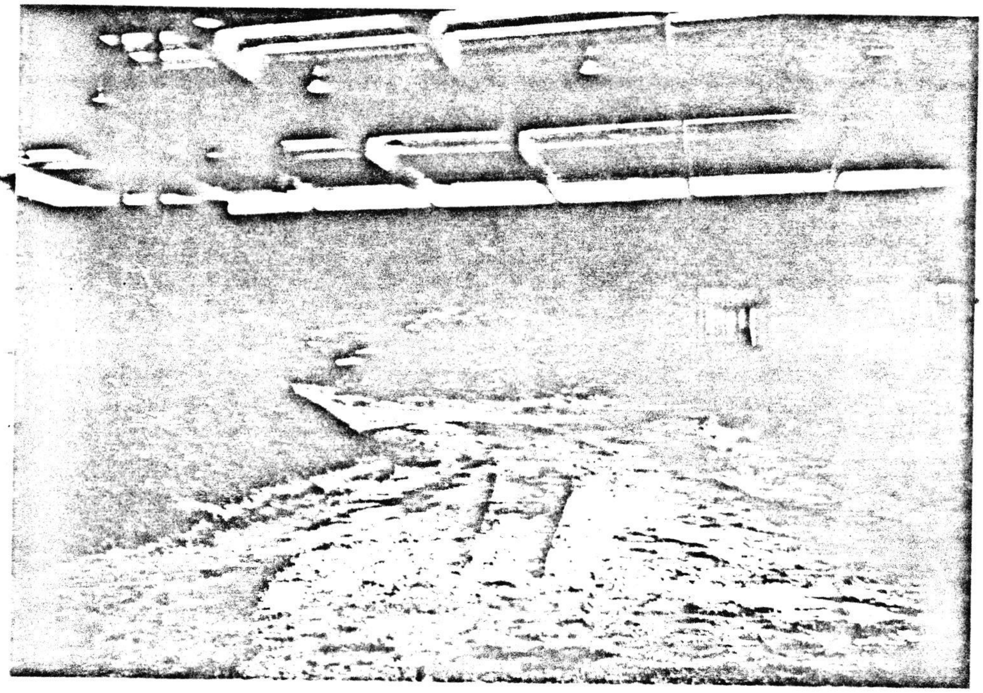
WASTE STORAGE INSIDE BATTERY
BUNKER AND PASTE STORAGE AREA.
TAKEN 6/30/92 BY A.R. WAMPLER
SER
THE DOE RUN COMPANY

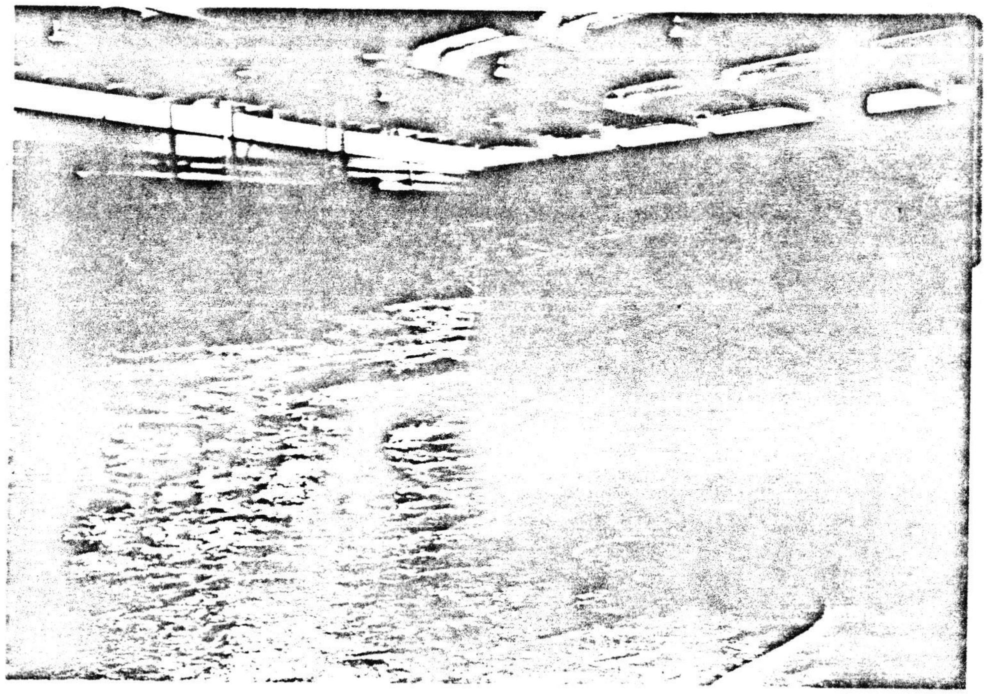
BATTERY BREAKING AREA IN
BUNKER BATTERIES ARE STORED
TO AGE"
TAKEN 6/30/92 BY A.R. WAMPLER
SER
THE DOE RUN COMPANY BUICK FACILITY

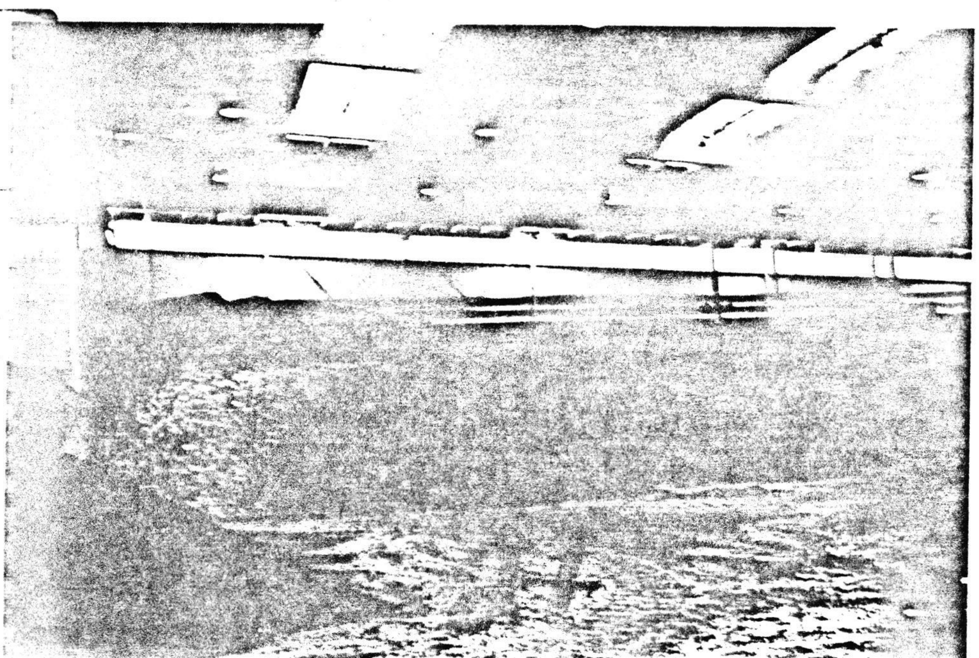


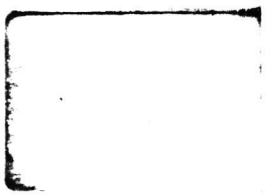
STORAGE OF BATTERY WASTE
IN BATTERY BUNKER APPROXIMATELY
16 FT IN DEPTH.
TAKEN 6/30/92 BY A.R. WAMPLER
SER

THE DOE RUN COMPANY, BUICK FACILITY







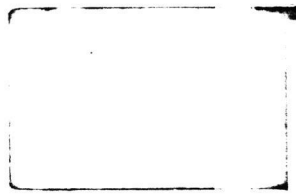


DRUM STORAGE PILE

TAKEN 6/30/92 BY AR WAMPLER

SERO

THE DOE RUN COMPANY BUICK FACILITY



LARGE WASTE PILE CONTAINING BATTERY WASTE TAKEN IN BATTERY BUNKER 6/30/92 BY AR WAMPLER

SERO

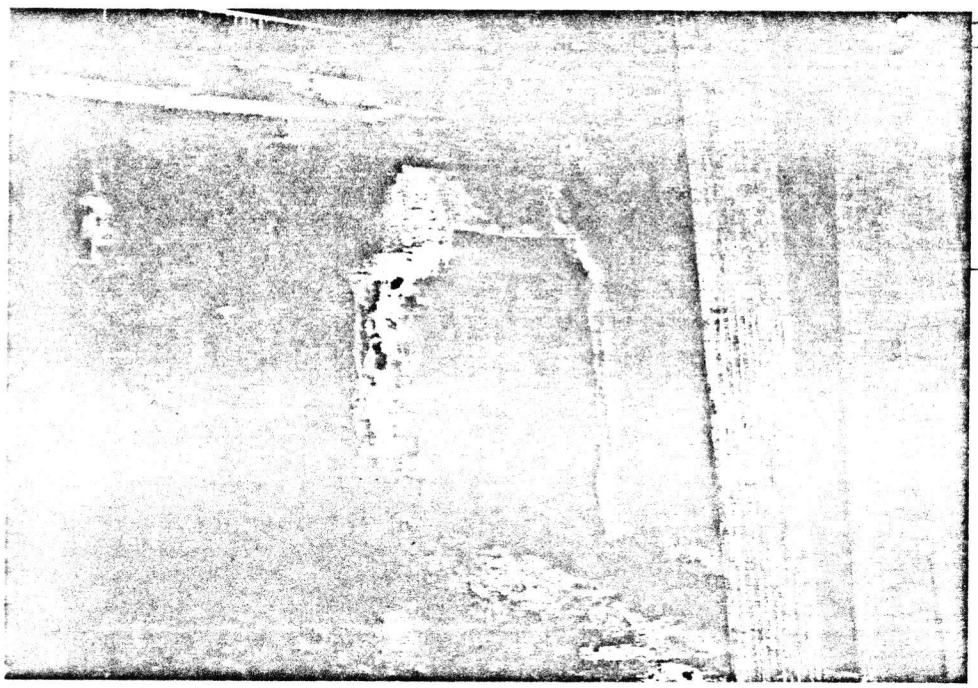
THE DOE RUN COMPANY, BUICK FACILITY

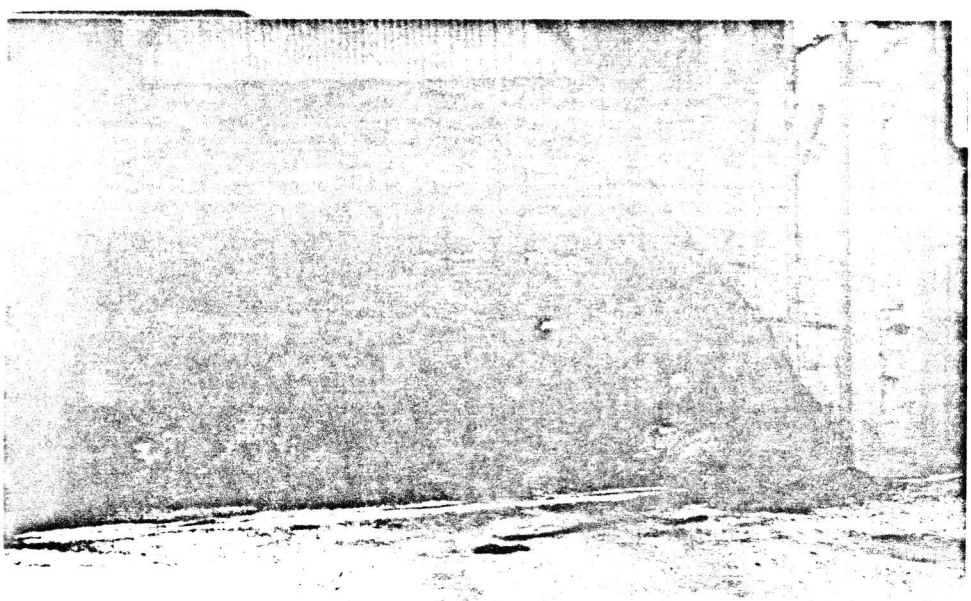
DRUM STORAGE WASTE PILE

TAKEN 6/30/92 BY AR WAMPLER

SERO

THE DOE RUN COMPANY, BUICK FACILITY





WASTE STORED IN WASTE STORAGE AREA

TAKEN 6/30/92 BY A.R. WAMPLER

SEMO, THE DOE RUN COMPANY

BUICK FACILITY

LEAD WASTE BATTERY PASTE IS TRANSFERRED TO THE HOPPER

TAKEN 6/30/92 BY A.R. WAMPLER

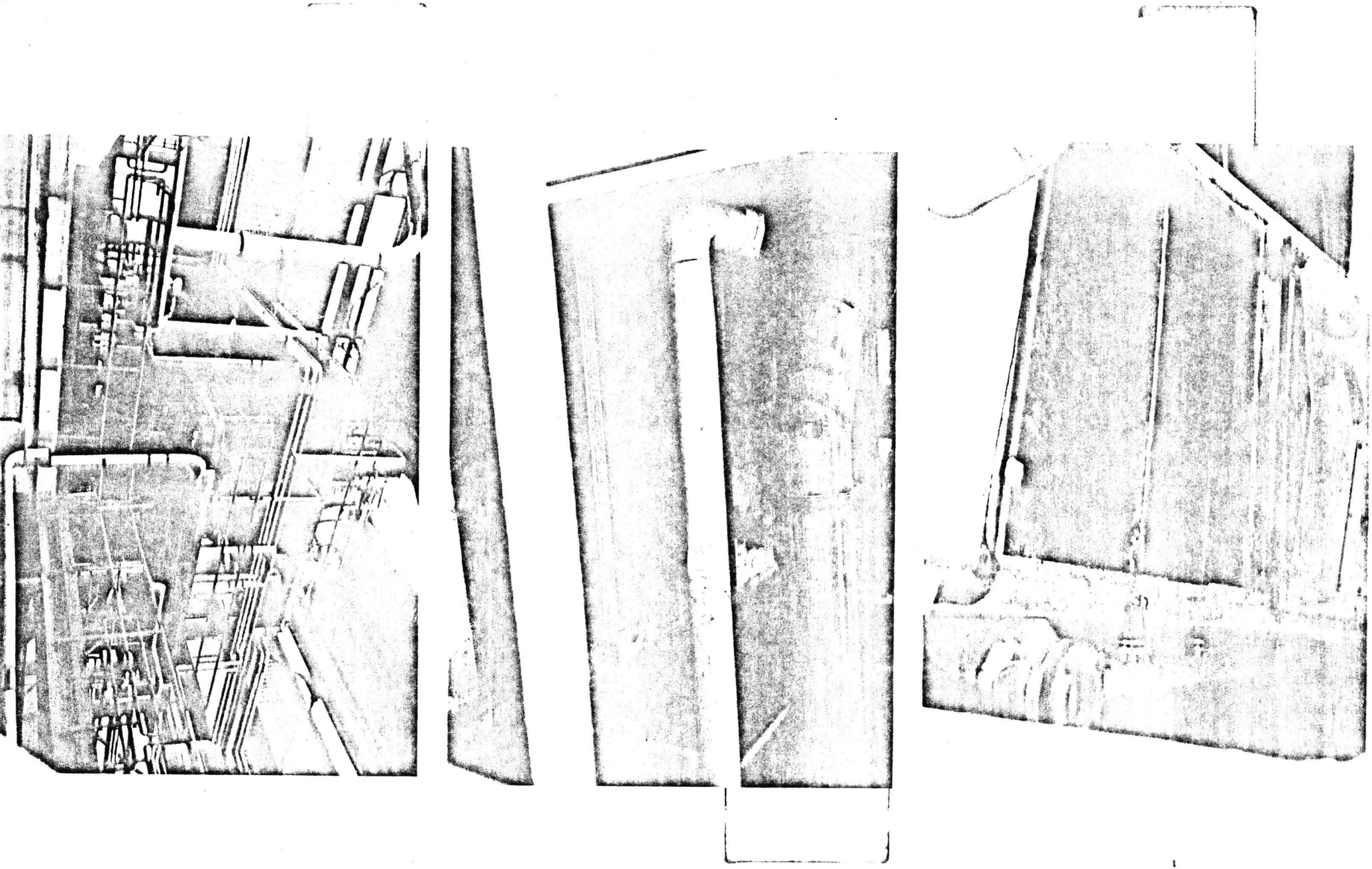
THE DOE RUN COMPANY, BUICK FACILITY

FEED MATERIAL STORED PRIOR TO TRANSPORT TO "FURNACES"

TAKEN 6/30/92 BY A.R. WAMPLER

SEMO THE DOE RUN COMPANY

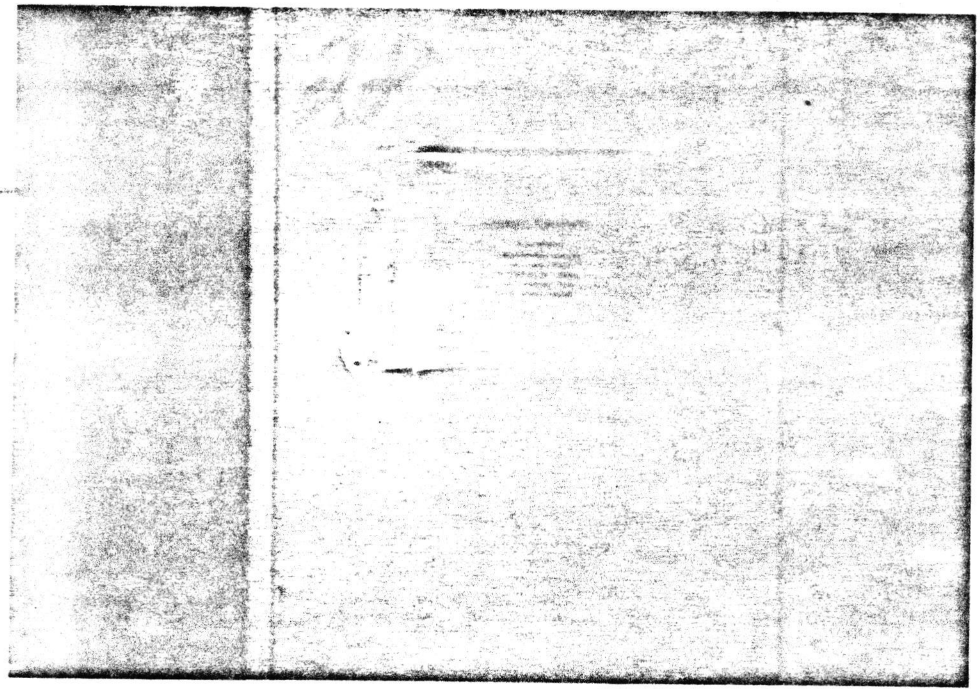
BUICK FACILITY

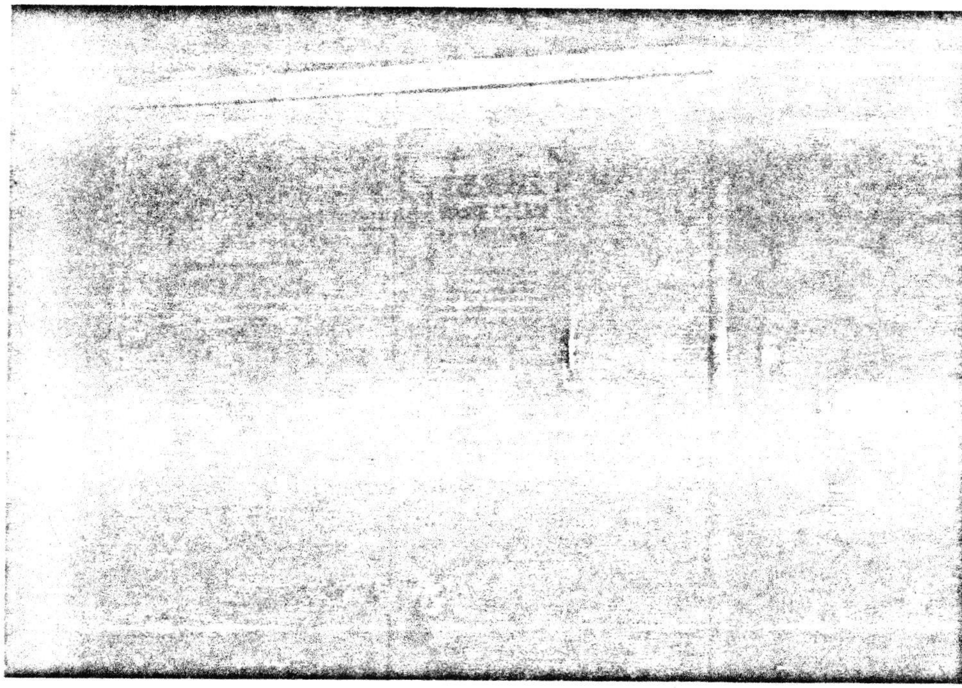


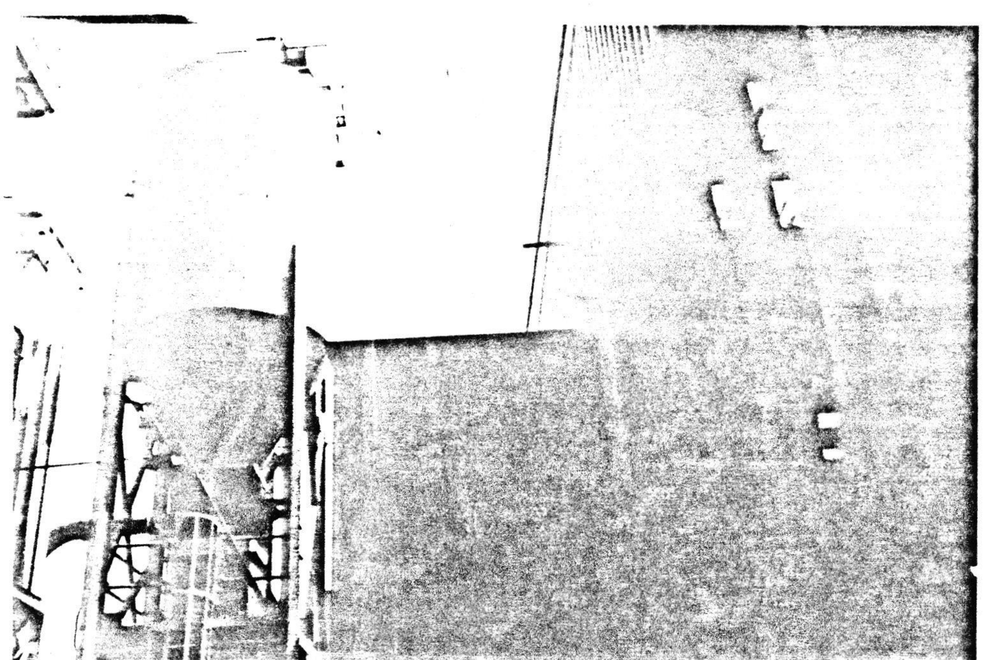
Unit operations part of Battery, Desulfurization, Crystallization Buildings
Separation of Battery components
Taken 6/3/92 by A. M. Lampiris
SERO
The Doe Run Company, Built Facility

Part used in Battery component
separation in BDC Building.
Taken 6/3/92 By A. M. Lampiris
SERO
The Doe Run Company, Built Facility

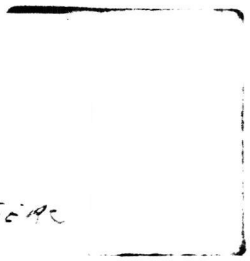
View of unit operations in
BDC Building.
Taken 6/3/92 By A. M. Lampiris SERO
The Doe Run Company, Built Facility





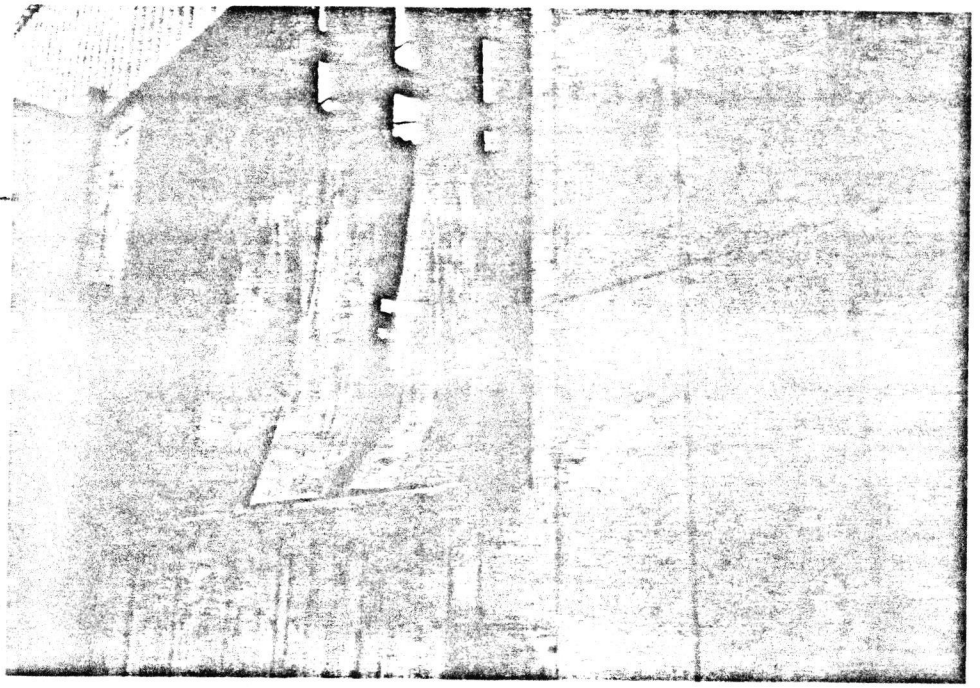


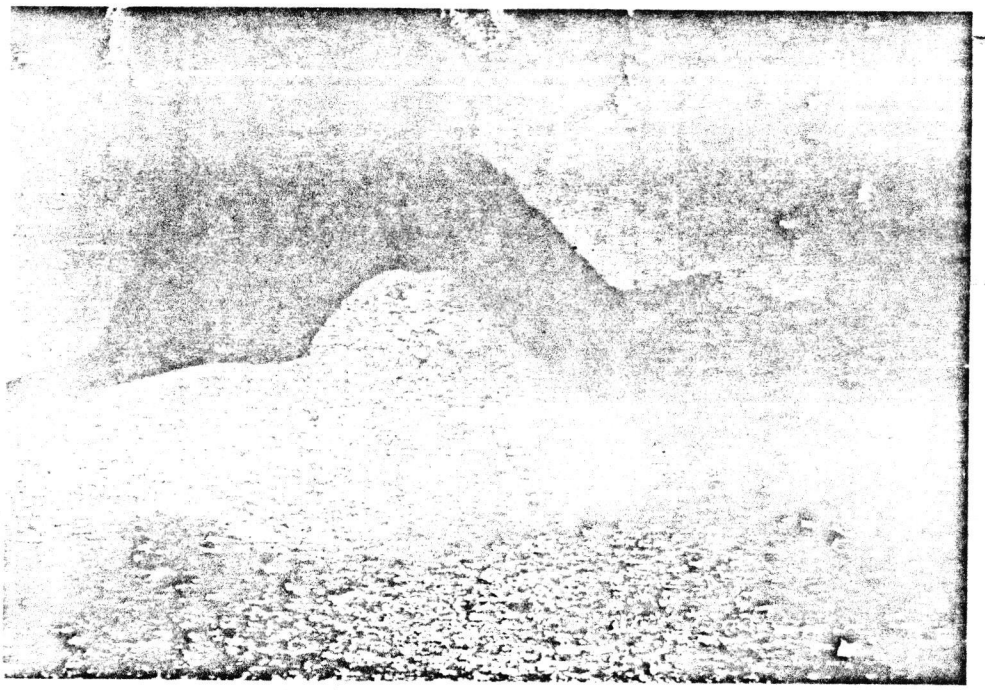
STORAGE LOCKER FOR MATERIALS USED IN HAZARDOUS WASTE CLEAN UP
TAKEN 6/30/92 BY A.R. WAMPLER
[illegible]
[illegible]

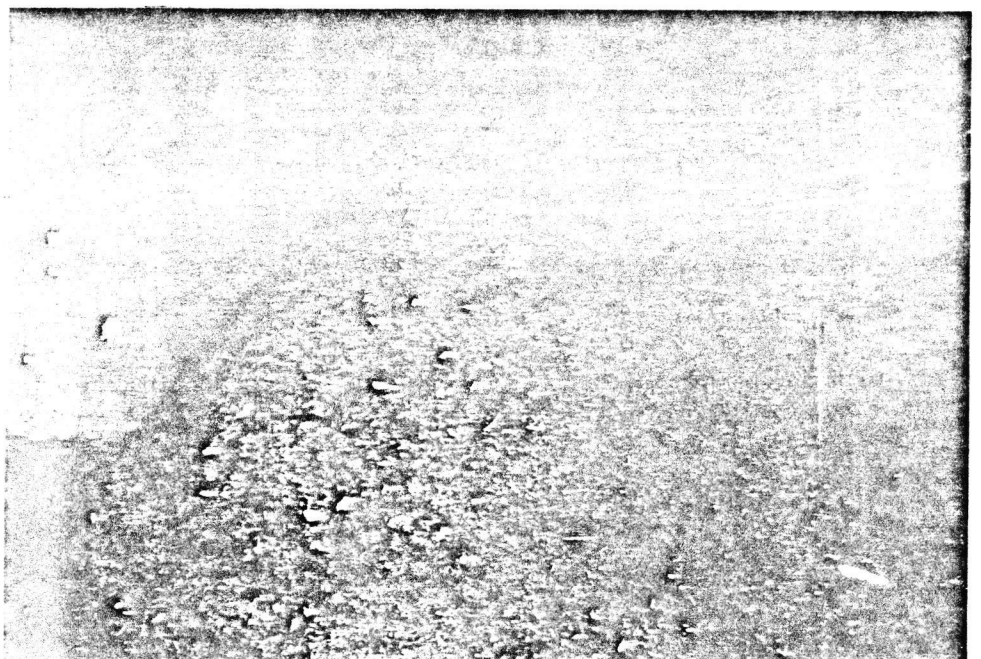


SAFETY LOCKER AND STORAGE COMPARTMENT FOR HAZARDOUS WASTE CLEAN UP MATERIALS
TAKEN 6/30/92 BY A.R. WAMPLER, SERC
THE DOR MAN COMPANY, BUICK FACILITY

STORAGE SITE OUTSIDE BDC BUILDING AND LOAD OUT FROM PASTE STORAGE NEAR "DOOR FIVE"
TAKEN 6/30/92 BY A.R. WAMPLER, SERC
THE DOR MAN COMPANY, BUICK FACILITY







LAYOUT AT PASTE STORAGE SIDE OF BUILDING "BOC". TAKEN 6/30/92 BY A.R. WAMPLER SEAC

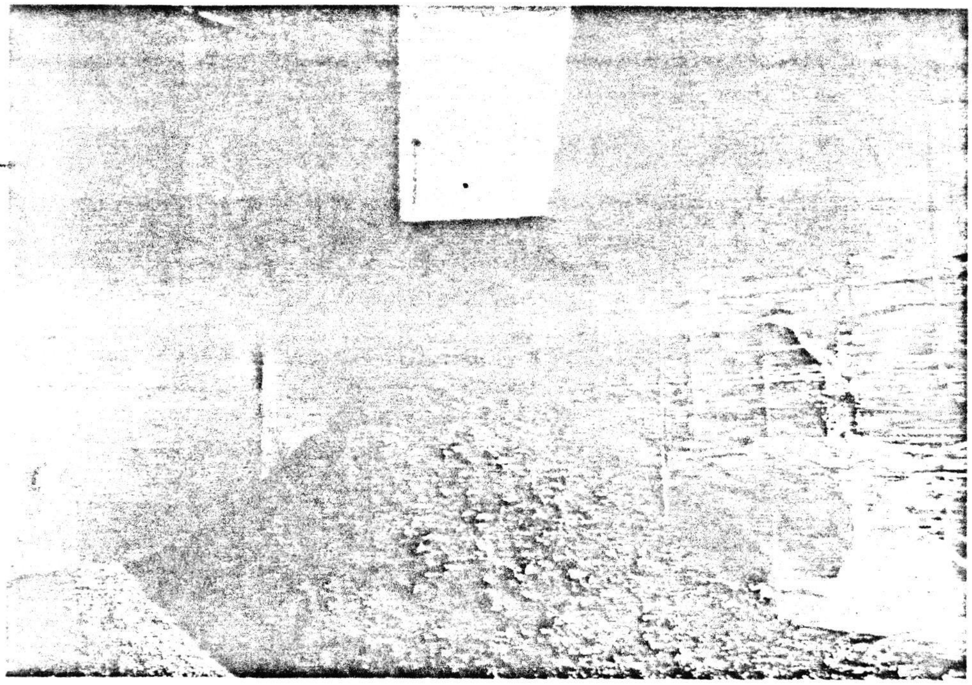
THE DOE RUN COMPANY, BUICK FACILITY

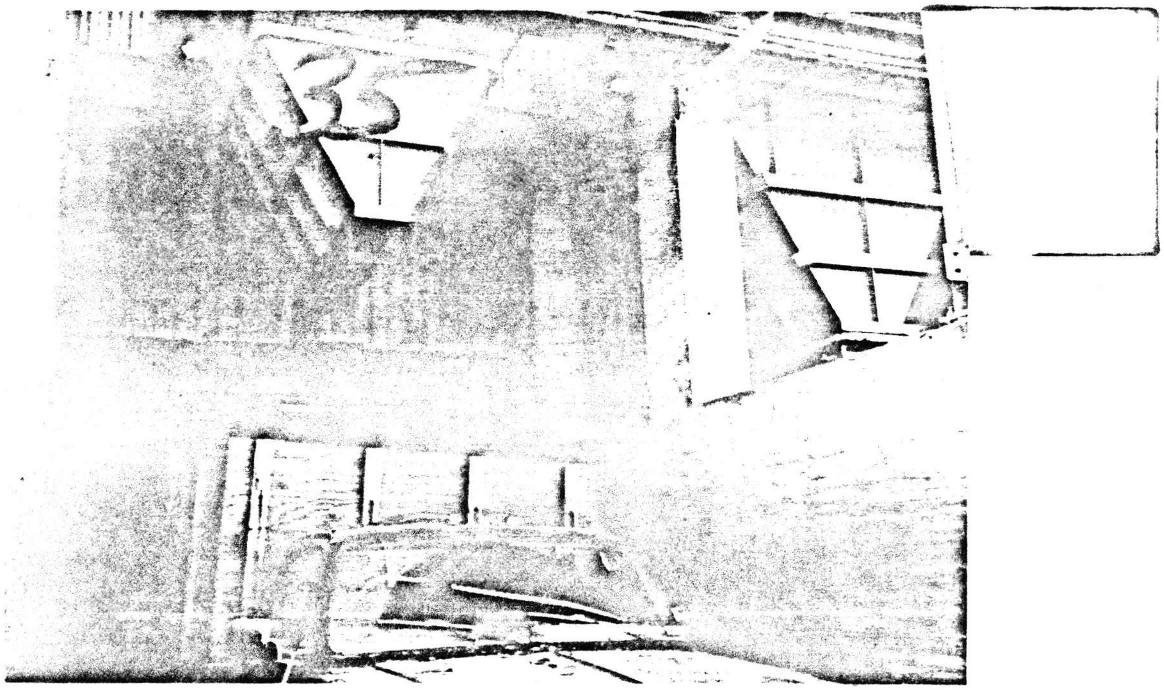
BATTERY COMPONENTS SEPARATED FROM BROKEN BATTERIES DURING SEPARATION PROCESS, MATERIAL TO BE SENT TO FURNACES, ON OUTSIDE OF "BOC" BUILDING TAKEN 6/30/92 BY A.R. WAMPLER, SEAC

THE DOE RUN COMPANY, BUICK FACILITY

BATTERY COMPONENT MATERIAL WASTE GENERATED DURING BREAKING OPERATIONS LOCATED AT "BOC" BUILDING TAKEN 6/30/92 BY A.R. WAMPLER SEAC

THE DOE RUN COMPANY, BUICK FACILITY



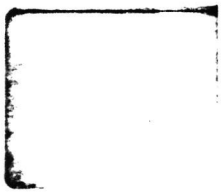


AREA DEPICTED IN PHOTOGRAPH # 3

SHOWING DROP CHUTE FOR COMPONENT WASTE.

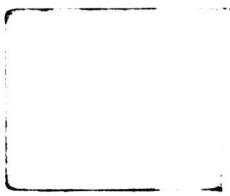
TAKEN 6/30/92 BY A.R. WAMPLER, SCRAP

TIRE CORE COMPANY BUICK FACILITY



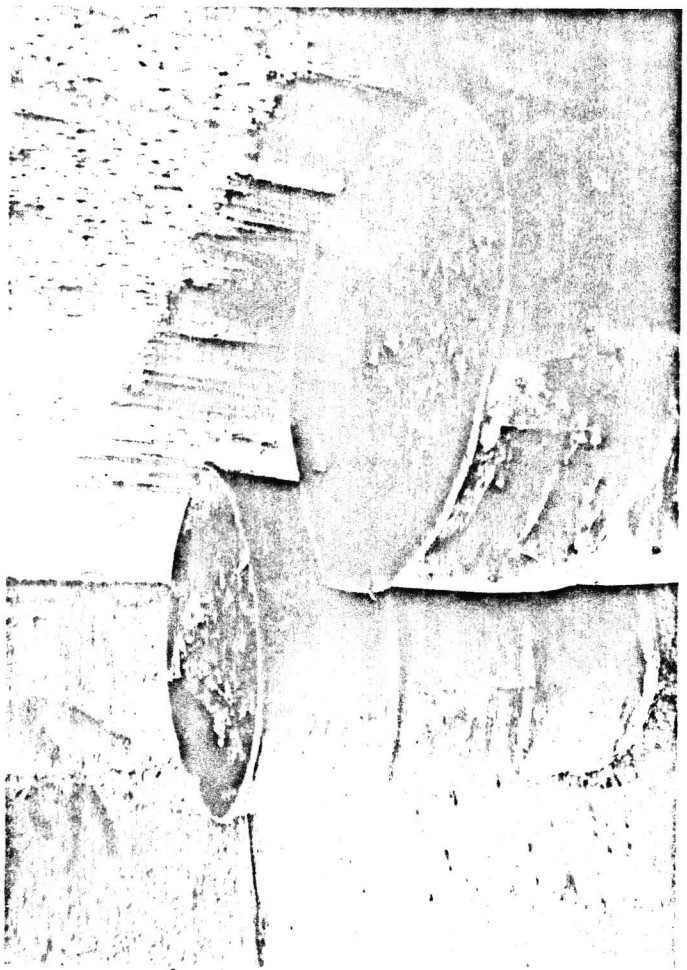
BATTERY COMPONENT WASTE BEING SELECTED IN TRUCK BED DURING SORTING OPERATION.

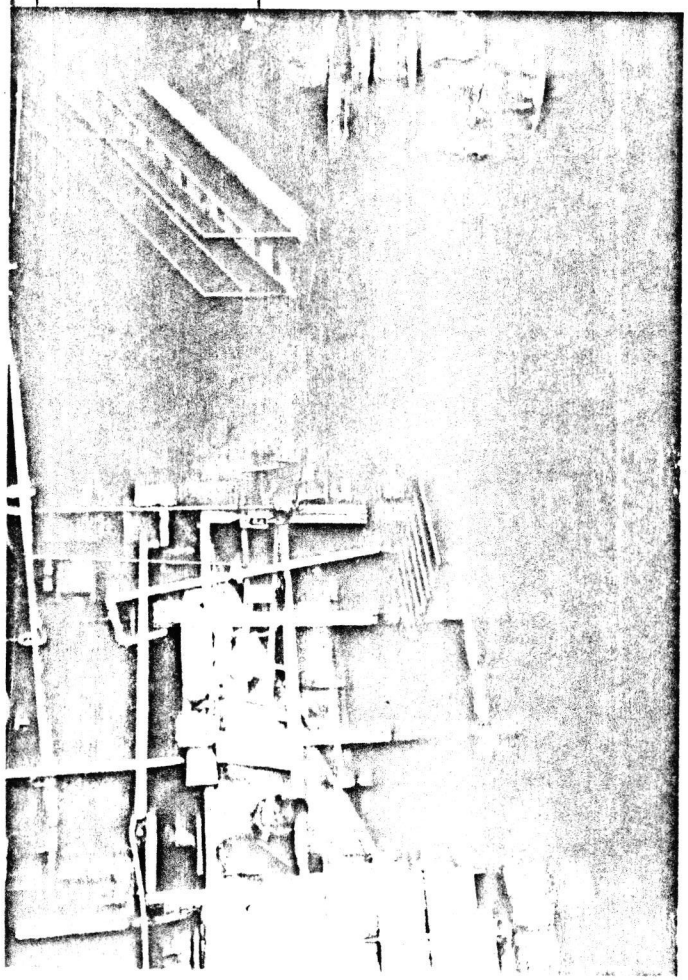
TAKEN 6/30/92 BY A.R. WAMPLER, SCRAP TIRE CORE RUN COMPANY, BUICK FACILITY

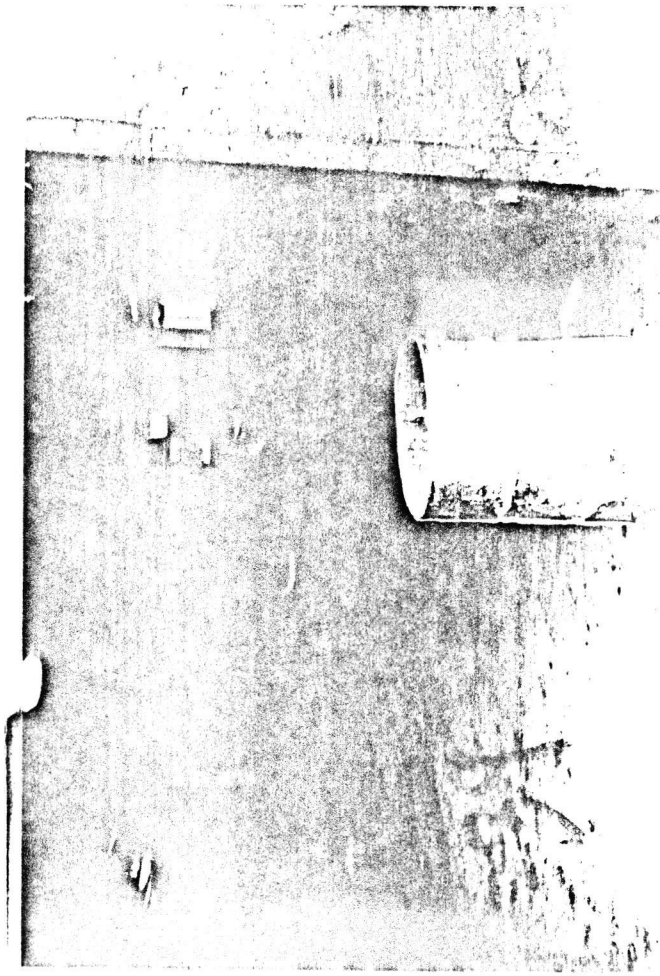


SCRAP PLASTIC BATTERY WASTE BEING BLOWN INTO TRAILER FOR SUBSEQUENT MARKETING.

TAKEN 6/30/92 BY A.R. WAMPLER, SCRAP TIRE CORE RUN COMPANY, BUICK FACILITY



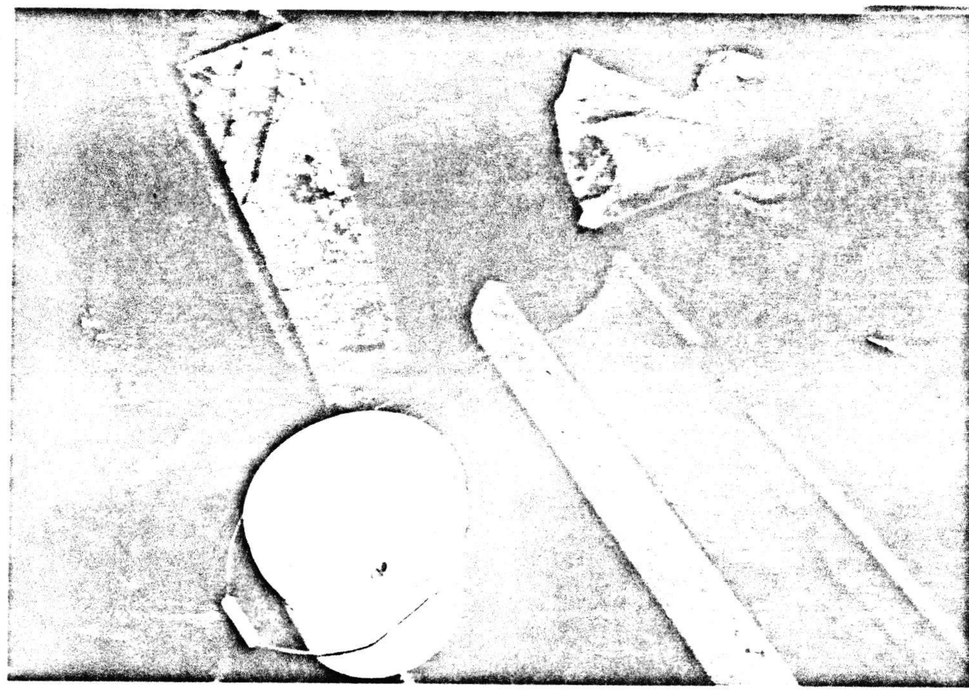
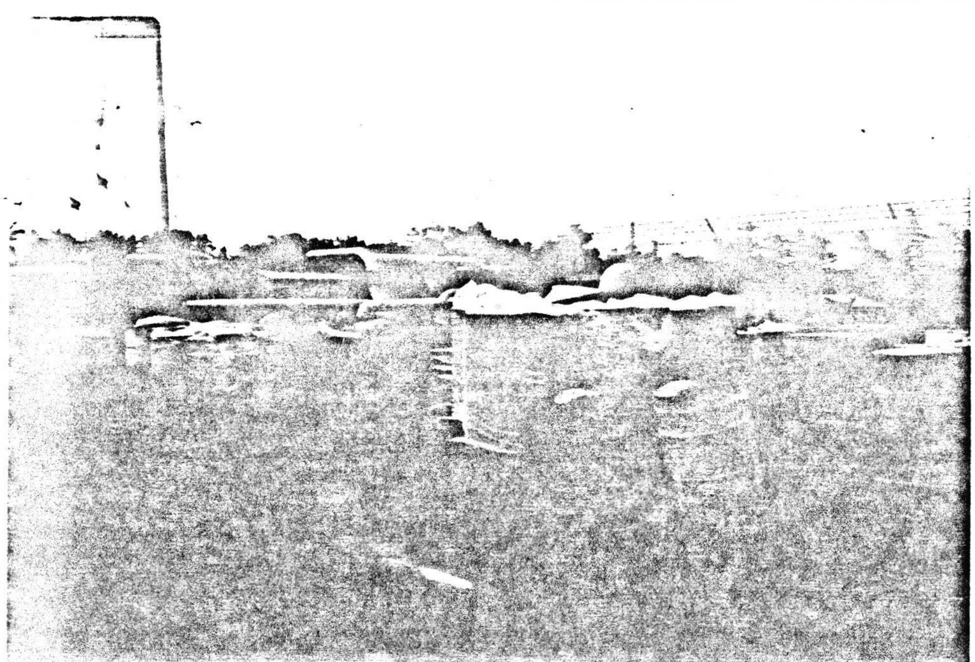




TWO DRUMS OF BATTERY COMPONENT WASTE CLEANED UP FROM BUNKER IN COMPONENT DISCHARGE AREA.
TAKEN 6/30/92 BY A.R. WAMPLER -

COLLECTION TANK FOR ACID/LIQUID FROM DRUM BATTERY BUNKER STORAGE. TANK IS PUMPED TO ACID STORAGE FOR REUSE IN THE PROCESS.
NOTE THAT TANK WAS OVERFLOWING AT THE TIME OF INSPECTION. WORKER WERE TRYING TO UNCLOG DRAIN TO STORAGE TANKS. ALL LIQUID OVERFLOW WAS CAPTURED AND PUMPED TO TANKS.
TAKEN 6/30/92 BY A.R. WAMPLER SERV.
THE COP RUN COMPANY, BUICK FACILITY

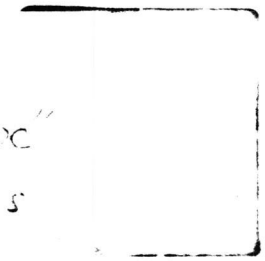
AREA ADJACENT TO ACID CATCH TANK FLOORING ALL SLOPES INWARD TO TRAP AND COLLECT ANY SPILL OR OVERFLOW -
THE COP RUN COMPANY, BUICK FACILITY
TAKEN 6/30/92 BY A.R. WAMPLER, SERV

BATTERY components for processing

TAKEN 6/30/92 BY J.R. WAMPLER, SCRO

THE DOR RUN COMPANY, BUICK DIVISION



INDUSTRIAL COLLECTION SYSTEM

AREA WHERE LEAK FROM [redacted] "DOC"

BUILDING IS MONITORED. LEAK WAS

NOTED ON THE DAY OF THE INSPECTION.

TAKEN 6/30/92 BY JRWAMPLER, SCRO

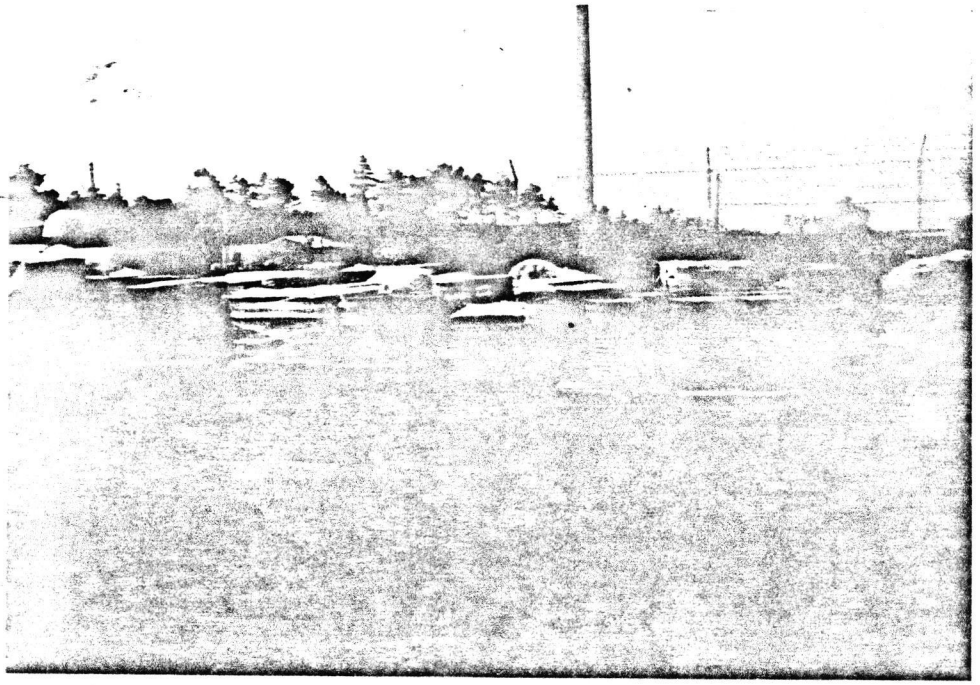
THE DOR RUN COMPANY, BUICK DIVISION

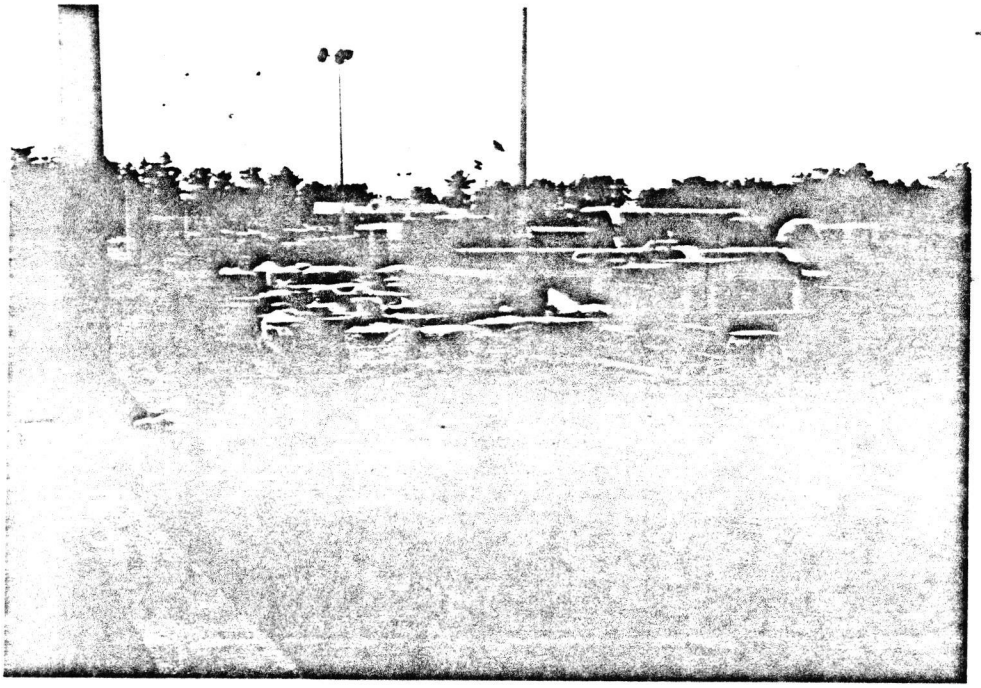
[redacted] MANIFESTED WASTE STORED ON

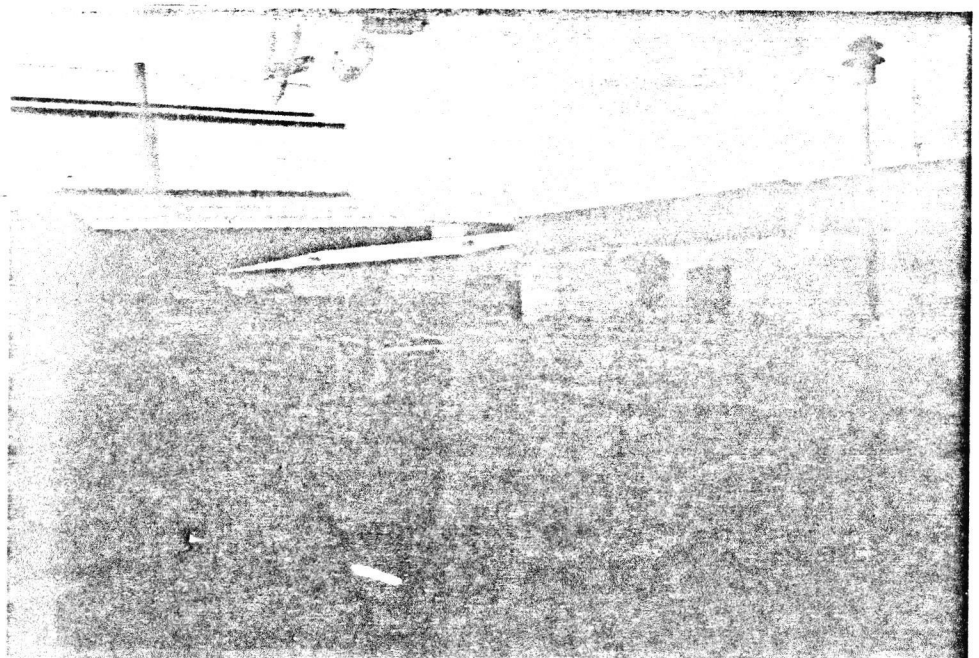
LOT NEAR "DOC" BUILDING. WASTE TYPE VARIES.

TAKEN 6/30/92 BY J.R. WAMPLER, SCRO

THE DOR RUN COMPANY, BUICK DIVISION



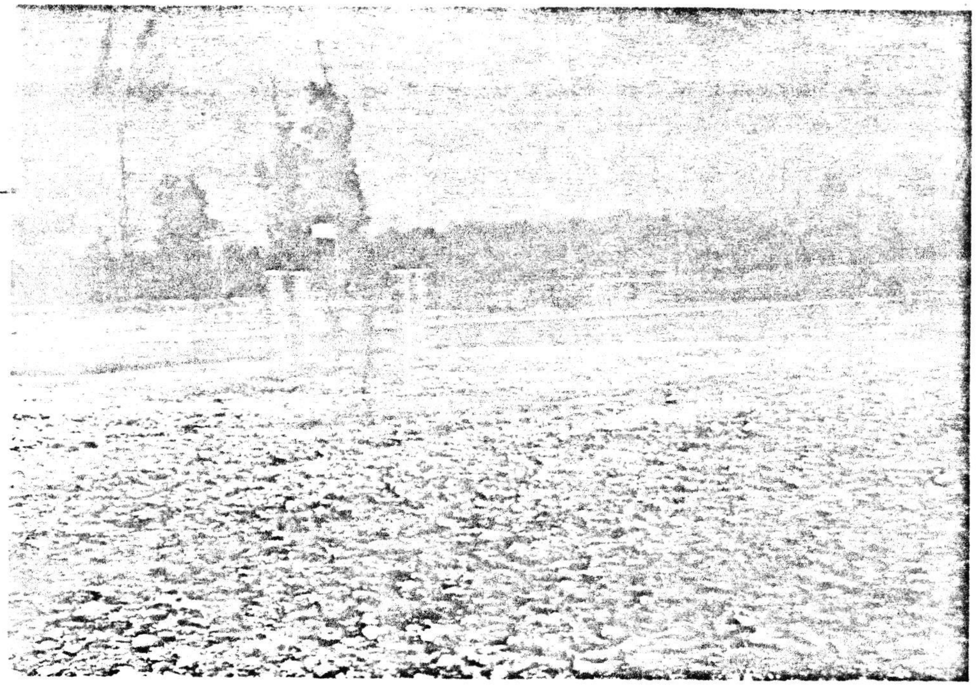


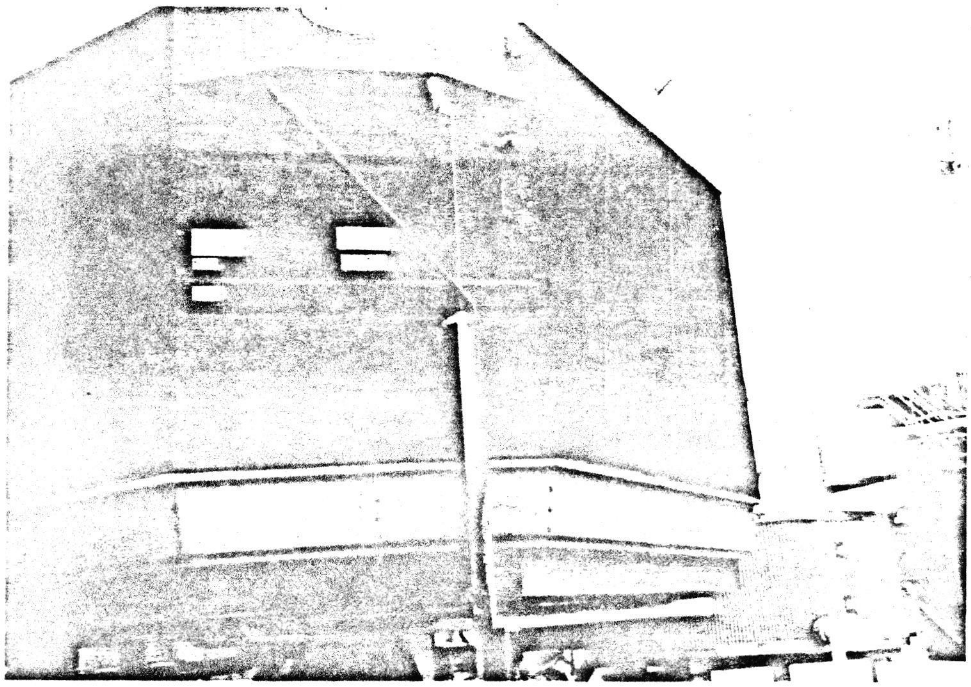


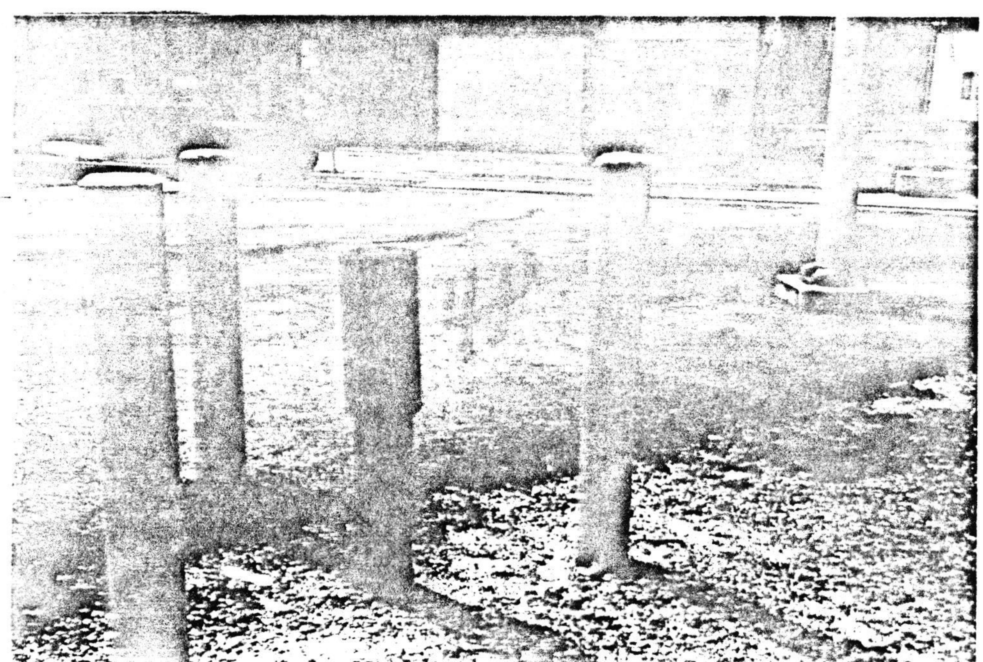
NEW HAZARDOUS WASTE STORAGE
ON LOT BY "BDC" BUILDING.
TAKEN 6/3/92 BY A.R. WAMPLER, SEAC
THE BOC Gas Company, Buick Division

DESIGNATED AS NEW HAZARDOUS WASTE
STORAGE LOT TAKEN FROM THE
EAST OF THE BDC BUILDING.
TAKEN 6/3/92 BY A.R. WAMPLER
THE BOC Gas Company, Buick Division

NEW OUTSIDE "BDC" BUILDING
TAKEN 6/3/92 BY A.R. WAMPLER, SEAC
THE BOC Gas Company, Buick Division







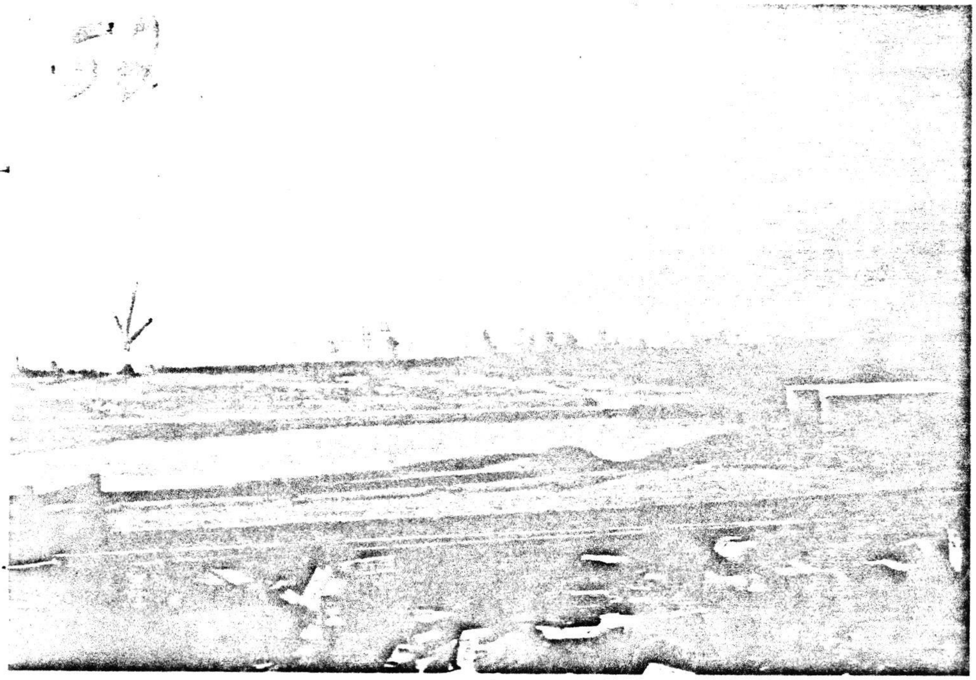
WATER SOURCE
TAKEN 6/30/92 BY A.R. WAMPLER, SCRA
THE DOE RUN COMPANY, BUICK DIVISION

MONITORING WELL LOCATED AND PROTECTED. TAKEN 6/30/92 BY A.R. WAMPLER, SCRA
THE DOE RUN COMPANY, BUICK DIVISION

SODIUM SULFATE TANK RAILCAR LOADOUT
DATE: 6/30/92 BY: A. A. WAMPLER, SCAQ
THE DOE RUN COMPANY, BUICK FACILITY

CHEMICAL TANKS LOCATED BY THE
BUICK BUILDING
DATE: 6/30/92 BY A. A. WAMPLER, SCAQ
THE DOE RUN COMPANY, BUICK FACILITY

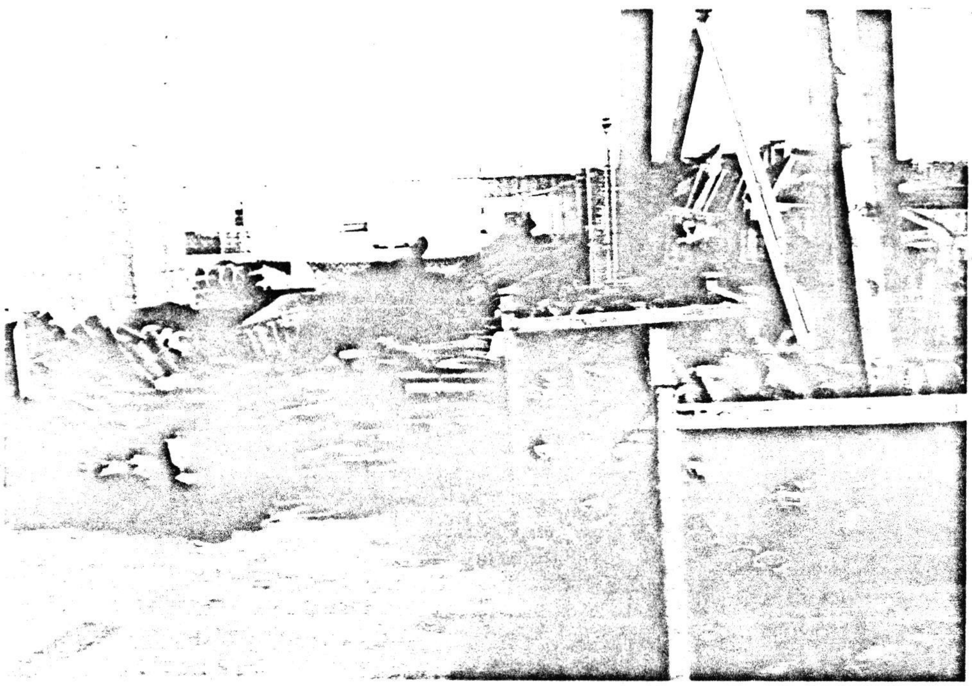
FIRE FIGHTING EQUIPMENT NEAR
ACID STORAGE TANKS
DATE: 6/30/92 BY A.A. WAMPLER, SCAQ
THE DOE RUN COMPANY, BUICK FACILITY

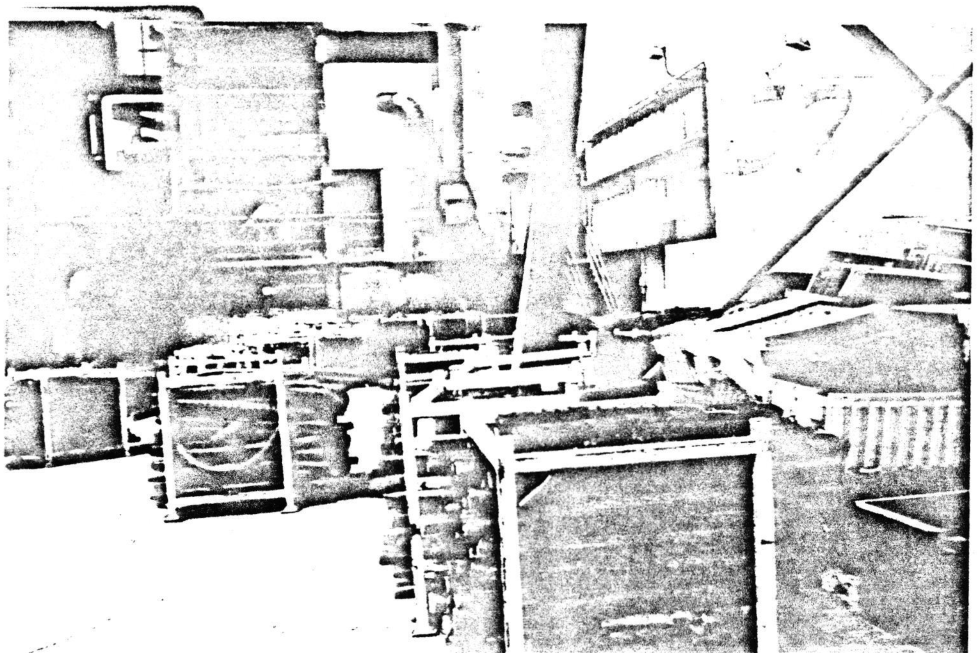


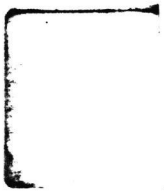
VIEW FROM REAR OF FACILITY.
ARROW PTS TO AREA WHERE OPEN
BURNING WAS TAKING PLACE.
[illegible]

DISCARDED DRUMS AND BATTERY
LOCATED AT REAR OF FACILITY
TAKEN 6/30/92 BY A.R. WAMPLER
SERO
THE DOE RUN COMPANY, BUICK [illegible]

DISCARDED EMPTY DRUMS BEHIND
FACILITY.
TAKEN 6/30/92 BY ALBERT R. WAMPLER
SERO
THE DOE RUN COMPANY, BUICK FACILITY



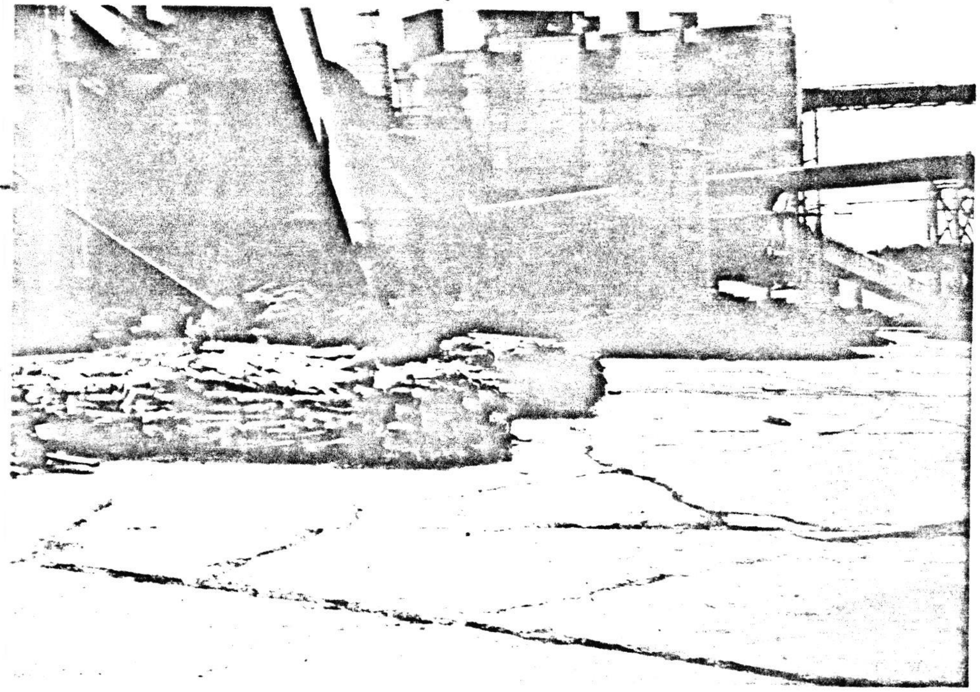


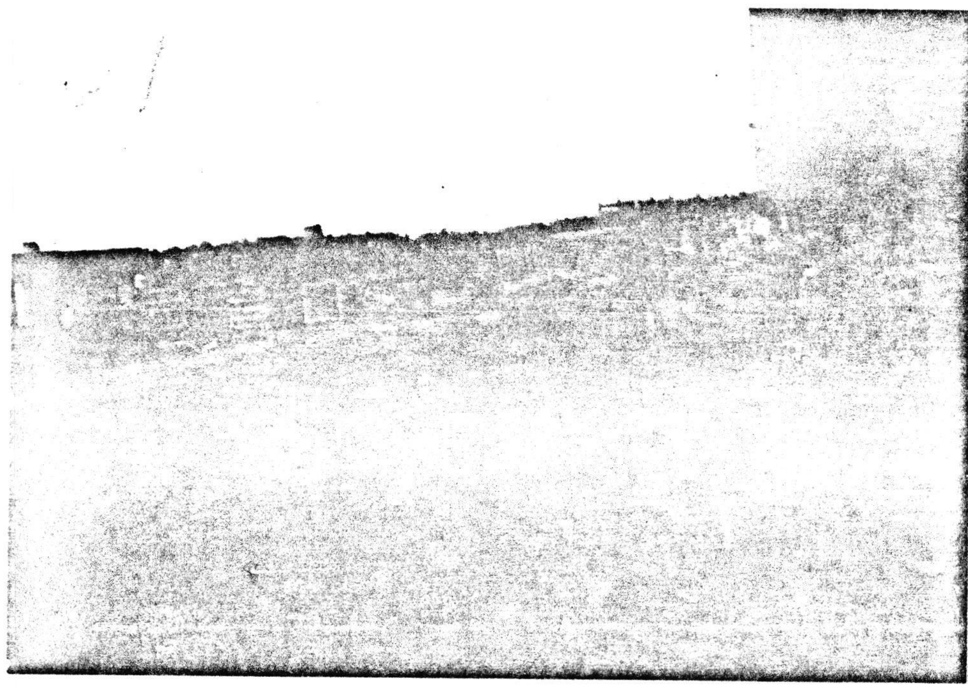


[illegible] PROCESSING AREA
[illegible] CHAMBER - LOOKING NON-HAZARDOUS
TAKEN 6/30/92 BY A.R. WAMPLER SCRD
THE DOR RUN COMPANY, BUILT FACILITY

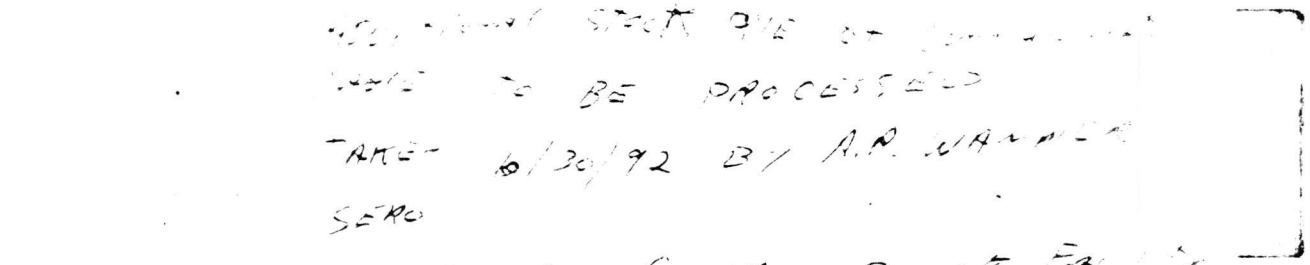
CONNECTOR CABLE STAGED AT [illegible]
[illegible] STRIPPED AT [illegible]
AND LEAD SHEATHING -
TAKEN 6/30/92 BY A.R. WAMPLER
SCRD
THE DOR RUN COMPANY, BUILT FACILITY

COMMUNICATION CABLE AT FACILITY
TAKEN 6/30/92 BY A.R. WAMPLER SCRD
THE DOR RUN COMPANY, BUILT FACILITY





[illegible] FROM CHUTE. SAID [illegible] BE
PUT INTO 8 YD ROLL-OFF FOR DISPOSAL
TAKEN 6/30/92 BY A.R. HAMPLER SERO
THE DOR RUN COMPANY, BUICK FACILITY

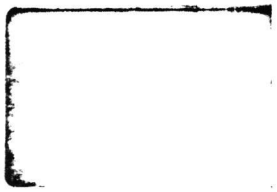


[illegible] STOCK PILE OF [illegible]
[illegible] TO BE PROCESSED
TAKEN 6/30/92 BY A.R. HAMPLER
SERO
THE DOR RUN COMPANY, BUICK FACILITY

WASTE MATERIAL STORED OUTSIDE
(CONCRETE TYPE)
TAKEN 6/30/92 BY A.R. HAMPLER SERO
THE DOR RUN COMPANY, BUICK FACILITY

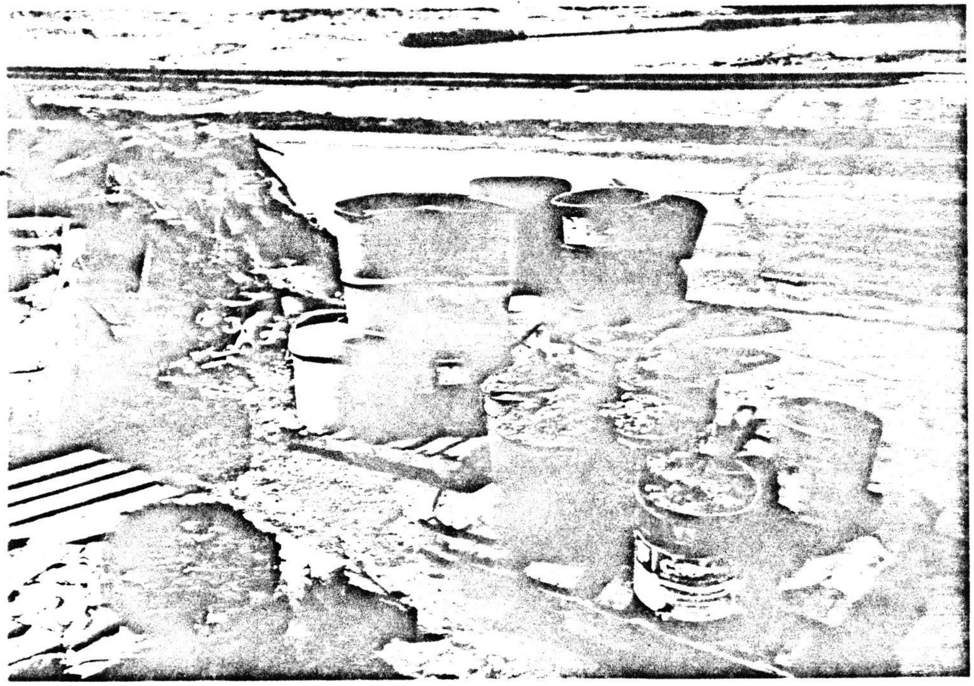
61

LEAD BEARING LADLE STORED OUTSIDE
TAKEN 6/30/92 BY A.R. WAMPLER
SERC
THE DOE RUN Company, Buick Facility



LEAD BEARING LADLE STORED OUTSIDE
TAKEN 6/30/92 BY A.R. WAMPLER
SERC
THE DOE RUN Company, Buick Facility

DROSSES AND DRUM LEAD BEARING
MATERIAL STORED BEHIND FURNACE AREA
SAID TO BE NON-HAZARDOUS MATERIAL
TAKEN 6/30/92 BY A.R. WAMPLER
SERC
THE DOE RUN Company, Buick Facility



WASTES STORED OUTSIDE IN CONTAINERS
AND DUMPED ON THE CONCRETE
SURFACE, NOTE EXCESS "TRASH" IN
THE WASTE [illegible] PLASTICS ETC
[illegible]
[illegible]

PILE OF WASTE STORED OUT BEHIND
BUILDING SHOWING AREA APPEARING
TO BE TYPE SET WASTE, NOTE
WOOD WASTE, PLASTICS & PAPER IN
THE WASTE PILE. THIS COULD BE HIGH
IN ARTIMONY CONTENT -
TAKEN 6/30/92 BY A.R. WAMPLER
SCRO
THE DOE RUN COMPANY, BUICK FACILITY

ATTACHMENT 2

SECTION 2
PROCESS DESCRIPTION

2.1 INTRODUCTION

The purpose of this section is to provide a general overview of the resource recovery facility and identify the components which are regulated units and are required to address the state and federal hazardous waste pile requirements. Also, this section serves several other purposes including: providing general information for a reader unfamiliar with the resource recovery plant operations, providing the background necessary to differentiate between the regulated waste pile operations and the other processes at the plant, providing insight into the rationale used during the design development of the facilities processes and management systems.

The plant is designed with automated processing systems to develop lead grids, lead alloy (desulfurized paste), polypropylene and sodium sulfate recovery. These products will be developed from automotive and industrial batteries, lead drosses, and lead fume received at the facility. The facility is designed to accept a nominal feed consisting of 88,000 tons of automotive batteries, 20,000 tons of industrial batteries, and 12,000 tons of purchased scrap. The facility's design will result in the yearly average production of 60,000 tons of lead and lead alloy per year, along with other marketable byproducts. The plant has the ability to operate at peak capacities of approximately 75,000 tons of lead per year to offset lower operating rates during periods when feed availability has decreased.

2.2 RAW MATERIALS PROCESSING

This section presents a description of each of the major process operations used during the resource recovery of waste batteries and other scrap materials. Each section discusses the process operations and the resulting product or waste streams from that operation. Individual waste streams from the processes are presented in greater detail in Section 3. Each of the processes discussed in this section is presented in greater detail in Section B, Attachment B-1.

2.2.1 Unloading

Raw materials will be received at the plant from trucks after they have weighed in at the scale house. On the average, 27 trucks daily will unload automobile batteries, industrial batteries and fluxes. The majority of the batteries received at the facility will be delivered to the facility on pallets. Forklifts will be used to unload trucks with palletized batteries. Up to four forklifts can operate on the dock removing pallets of batteries from the trucks at once. The batteries to be dumped into the bunker have to be unwrapped and unstrapped from the pallet. Wrapping plastic and strapping is removed at the dock. The plastic wrap and strapping material is discarded into separate roll-off tote cans at the edge of the dock. These tote cans are removed periodically when full by the contracted waste hauler. The batteries are then dumped into the bunker with the forklift. Batteries which need to be stored are hauled by forklift to the palletized storage area.

Industrial batteries weighing up to 5-6 tons will also arrive at the unloading dock. These batteries can be transferred directly to the industrial battery processing area or to the palletized battery storage area.

Battery or customer plant scrap can also be received at the unloading dock in drums. These drums will be hauled to the industrial battery treatment area by forklift with barrel tongs.

2.2.2 Palletized Storage

The palletized storage area will be utilized for short-term storage of batteries prior to entering the battery bunker area. Batteries would be stored in the pallet storage area when the plant is shut down, or when more batteries than are processed on a single day are received, or when the battery storage bunker is full. The plant will have a 15-day capacity in the palletized storage building. The facility has been laid out so that an additional 15 days of palletized storage capacity could be developed if needed in the future.

2.2.3 Industrial Battery Processing

Industrial batteries are unloaded by forklift in the unloading dock area and transferred to the Industrial Battery Area with the use of forklifts. Batteries will be of varied type, size and weight. The battery is placed upon a cart on rails and wheeled to several cutting and separating units. After the metal sides have been spread out with the air powered spreader, the cart is further wheeled to the plate extractor station. The plate extractor swings the cells onto the grid conveyor after the acid drains into a stainless steel trough which transfers the acid to the sump. The conveyor transports the industrial grids to the shear. When the industrial grids reach the shear, they are cut into approximately 9-12 inch length pieces and dropped back into the battery bunker.

The industrial battery breaking area is on the second floor of the building and has an acid brick floor. The polycarbonate plastic sleeves found on the industrial cells are set aside for compacting with the polycarbonate compactor. This type of plastic cannot be mixed with the regular polypropylene plastic coming in with the SLI batteries. Acid spilled in this area will be collected into the trench going to the sump in the basement.

Plant scrap will be received from the scrap dealers and the battery customers in metallic drums, wood boxes, metal containers, etc. This material will be different from each customer and thus will have to be custom handled. In addition, each drum may have a mixture of materials in them. Therefore, the Plant Scrap area will be designed to handle each drum individually. The scrap material is unloaded on the unloading dock with forklifts from the truck trailers and brought to the scrap handling area. In the receiving area of the plant scrap area, the segregation of non-lead bearing material begins. Wood, plastic, iron, paper, separators, etc. are discarded into the metal containers as waste. The barrel is then carried by forklift to a vibrating screen and turned over to empty the barrel. If the barrel contents do not drop on the screen, then the barrel is cut manually on the barrel cutting stand by a hand operated saw. Contents that spill on the screen are segregated into three fractions -- minus 2 inch, plus 2 inch-minus 8 inch, and plus 8 inch material. The chunks of softer dross

are broken on a floor screen with a jib mounted breaker. The larger hard chunks of dross or metal that cannot be broken through the screen are loaded into a container for transport directly to the refinery. The empty barrel is then washed at the barrel washing station and discarded into a metal scrap material container after being compacted/crushed with the drum crusher, or if in good condition, recycled back to the scrap dealer.

2.2.4 Battery Storage Bunker

The battery storage bunker will receive raw material feed consisting primarily of spent SLI batteries (automotive batteries). The breaker area could also receive partially broken SLI batteries and decased and sized industrial groups.

The battery storage bunker area is 24,750 $ft.^2$ capable of holding 5,434 tons of batteries (with a battery density of 75 $lbs./ft.^3$). This enough material to operate the battery breaking plant for 13.3 days.

Batteries are dropped into the bunker from the unloading dock with forklifts. Unpalletized batteries can also be dumped into the bunker with a dump truck using the ramp. The intent of the bunker is to break as many of the battery cases as is possible with the dumping and moving of the batteries to the two storage areas inside the bunker. The dropping area will have stainless steel lined walls to allow the front end loader to rack the batteries against the wall in order to break them up. The acid from the broken batteries is drained to a sump on the first floor at the Industrial Processing Building, and then pumped to acid storage tanks. The front end loader then moves the batteries to either the storage area or to the feed hopper. The two storage areas will be worked alternately so the batteries have a chance to drain and age. The bunker will have 16-foot high acid resistant coated concrete walls, an acid resistant asphalt floor, and a leak detection system above a secondary liner.

Broken batteries (feed material) is loaded into a ventilated hopper (55 ton capacity) by means of a large front end loader. Material is discharged to a feed belt by means of a vibrating pan feeder. Feed material passes under an

electromagnetic cross belt and a metal detector as the material travels to the hammermill by belt. The electromagnetic conveyor carries the magnetic material to a hopper located under the industrial battery processing section of the plant. A metal detector is also hooked to the conveyor prior to the hammermill. If metal is detected, the conveyor to the hammermill will then be shut down. The feed is milled to reduce the size and liberate components of the battery. The stainless steel hammermill is vented to the scrubber to keep acid mist and particulate contained within the mill.

2.2.5 Paste Separation

A vibrating wet screen receives crushed battery feed from the hammermill and spray washes the paste fraction of the broken battery through a 0.6 mm opening screen into a paste slurry holding tank. The oversize material is moved by the vibration of the screen across the deck until it is discharged to the hydrodynamic separator system.

2.2.6 Battery Component Separation

The oversize material from the wet screen is delivered to a hydrodynamic separator in which the polypropylene is floated off the top and removed by screw to a blower for loading to a van. The lead metallics sink and are removed by a conveyor at the bottom of the hydrodynamic separator. An intermediate fraction is removed consisting of ebonite and separator material which are dewatered and further separated into ebonite and separator material in a second hydrodynamic separator. The hydrodynamic separator separates the materials by using counter gravity water flow.

2.2.7 Paste Desulfurization

Paste desulfurization is conducted in two reaction vessels. These tanks receive the paste from the paste centrifuge where the paste has been partially dewatered. The excess water from the centrifuge is ultimately returned to the vibrating screen. A solution of sodium carbonate (coming from the soda ash solution tank) is mixed with the dewatered battery paste in the reaction tanks.

The soda ash (Na_2CO_3) reacts with the $PbSO_4$ in the battery paste to produce a $PbCO_3$ paste and a Na_2SO_4 solution. The objective of this reaction is to leach the maximum amount of sulfur from the battery paste into the solution so it can be carried to the crystallizer. The remaining solid material will have low sulfur content for ease of smelting in the reverberatory furnace. In addition, the low sulfur content battery paste will minimize the release of SO_2 during the smelting step in the reverberatory furnace.

The desulfurized paste is removed from the bottom of the reaction tanks and is pumped to the filter press with the desulfurated slurry paste pumps.

2.2.8 Desulfurized Paste Filtration

The desulfurized paste is filtered in a membrane type polypropylene recessed plate filter also constructed of stainless steel. The objective of this equipment is to remove the Sodium Sulfate (Na_2SO_4) solution from the paste. The goal is to reduce the moisture content of the desulfurized paste to 9 percent or less. The Na_2SO_4 solution is then sent to the neutralization reactors. Insulated tanks are used to make the final pH adjustment on the Na_2SO_4 solution before pumping this pregnant solution to the crystallizer. The pH in the Na_2SO_4 solution is controlled by back titrating clean battery acid coming from the electrolyte storage tanks. Before sending the pregnant Na_2SO_4 to the crystallizer, it is filtered through a membrane type plate filter to remove the last remaining particulate material from the solution.

2.2.9 Sodium Sulfate Crystallization

The neutralized Sodium Sulfate liquor is pumped to the holding tank, then to the crystallizer for the manufacture of anhydrous sodium sulfate crystals. The crystals are conveyed by conveyor into a hot air pneumatic conveyor powered by a combustion chamber which moves the moist salt pneumatically. As the salt is pneumatically conveyed the last remaining moisture is driven from the salt to the hot air. The liquor removed from the salt crystals at the hydrocyclone is returned to the crystallizer.

2.2.10 Paste Storage

The paste storage building contains two bunkers for the storage of paste. The capacity of paste storage is 20 days production. The paste storage building has an area of 6800 ft.^{2} and can hold 3136 tons of paste. The paste is moved in the paste storage area by the same dedicated front-end loader used in the battery bunker building. The paste is picked up from the floor under the filter press by the front-end loader and stacked in one of the two paste bunkers. This loader also fills the tote bin for the Combi carrier that transports the feed to the reverberatory furnace.

Letting the paste sit and age before charging to the Combi tote bins allows the paste to further oxidize and dry to lower moisture contents. Low moisture contents in the paste will allow improved handling qualities of the paste. Also, the lower moisture in the desulfurized feed will allow higher feeding rates of paste to the reverberatory furnace.

The paste is transported from the paste storage building to the reverberatory furnace area with the use of tote bins which can be carried by a specialized transfer truck. The bins are capable of carrying up to 50 tons of paste per trip. Each tote bin will have its own set of screws to feed the paste material to the skip hoist. The tote bin is placed on a scale platform next to the skip hopper charging station. The tote bins have at least 80 degree slopes to the sides. All subsequent bins and hoppers feeding paste to the reverberatory furnace have at least 80 degree slopes to allow the paste to feed through hoppers.

ATTACHMENT 3

SECTION B

FACILITY DESCRIPTION

Federal and Missouri Rules (40 CFR 270.14(b), 10 CSR 25-7.270(2)(B)) require that a hazardous waste permit application contain a description of the facility. Accordingly, this section of the Permit Application provides the following background information on the Buick Resource Recovery Facility:

- Overview
- Production Processes
- Waste Generation Processes
- Topographic Map
- Site Floodplain Information
- Traffic Information
- Seismic Information

Information regarding production processes and waste generation processes are included for clarification of process terms, waste origin, and overall facility operations referred to throughout the Permit Application.

B-1 GENERAL DESCRIPTION

A general description of the resource recovery facility and its relation to the entire Buick facility is provided in this following section.

Overview

The Doe Run Company (Doe Run) owns approximately 643 contiguous acres of which the Buick Resource Recovery Facility occupies about 145 acres in the southeast portion of the property. This facility is located near Boss, Missouri in Iron County and is serviced by County Highway KK. Figure B-1 shows the location of the facility, which is approximately 2 miles southwest of Bixby in Section 14, T34N, R2W.

The site lies within the Mark Twain National Forest along the western flank of the St. Francois Mountains in the Missouri Ozarks. The site is bordered on the north, west and south by forest, and on the east by underground mining and milling operations. The area is characterized by sparse population.

The Buick facility is located in the Eastern Ozarks climatological subdivision of Missouri and has a humid continental climate. The mean winter temperature is 30° F and the mean summer temperature is 80° F. The mean annual precipitation is about 46 inches.

The current Buick facility is a primary smelter that contains a sinter plant, a blast furnace, a refinery operation, air pollution control facilities, an acid production plant, and a wastewater collection and treatment facility. The principal products produced currently at the Buick facility are refined lead and lead alloys. By-products of the smelting process are silver skims, copper matte, and sulfuric acid.

Doe Run is expanding their facility to include resource recovery operations designed to receive automotive batteries, industrial batteries, and lead drosses and fumes. These materials are processed into metallic lead and alloys, polypropylene plastic, sodium sulfate, and waste materials.

Production Processes

The existing facility is a primary lead smelter and refinery that began operations in 1968. The existing facility has a nominal production of 135,000 tons per year of lead.

Input to the plant is flotation concentrates from sulfide ores and miscellaneous lead-bearing materials. These lead-bearing materials can include: sinter, fines, drosses, and residues from smelters; lead-bearing dusts and fumes from gas-cleaning processes; and residues from other smelters.

The major components of the smelting operations include: sintering to remove sulfur and concurrently agglomerate fine-sized feed materials; blast furnace smelting of sinter with coke and fluxes to make lead bullion; drossing the impure bullion with sulfur to remove most of the copper; and treating copper dross to produce a copper matte and crude lead bullion.

The crude lead bullion following drossing is refined by pyrometallurgical processes to produce marketable pure lead and various metal compounds and alloys. The gases from the sinter operations are rich enough in sulfur dioxide to produce marketable sulfuric acid by conventional technology.

The new resource recovery facility will process lead batteries and lead-bearing materials into marketable products. It is state-of-the-art in its capabilities to produce marketable products and minimal waste materials while controlling release of materials to the environment. The major source of feed material for this new facility is spent (or dead) lead-acid automotive batteries. Another source of feed material is industrial batteries. Most similar facilities purchase whole batteries rather than pre-separated lead-bearing components. A third source of feed is lead drosses, fumes and metallic cuttings/punchings.

Automotive lead-acid batteries are made of alternating positive and negative plates. The positive plates (anode) are composed of lead, lead sulfate, and lead oxide. The negative plates (cathode) are composed of lead oxide and other lead species. These plates are physically held apart and insulted by separators. Separators are typically composed of plastic, glass fiber or rubber. The plates and separators are immersed in dilute (about 15 to 20 percent) sulfuric acid. Each of the positive plates are connected together and each of the negative plates are connected together to posts (terminals) extending above the battery case. The frameworks of the plates are called grids which support the active material. The active material of the positive plate is lead oxide (PbO), called paste. The paste composition gradually converts to lead sulfate ($PbSO_4$) as the battery ages. The active material of the negative plate is lead. The grid and terminals can also contain other metals, such as antimony (Sb). The battery

container is typically composed of polypropylene with 5 to 10 percent of battery cases composed of ebonite (hard rubber).

The batteries are first processed by crushing the entire battery. The components of the batteries are separated mechanically following the breaking operation. The plates (lead grids), groups (combination of plates), lead oxide (paste), terminal posts, plastic casing, and rubber are also separated for further processing, sale or disposal. The grids and posts will be processed in the new rotary melter. The paste after undergoing desulfurization will be processed by the new reverberatory smelting furnace.

At an average production, the resource recovery facility is designed to utilize approximately 120,000 tons of raw materials per year and produce 60,000 tons per year of lead and lead alloys along with other marketable by-products. However, the plant is designed to take peak sustained throughput of approximately 150,000 tons of raw materials per year or 75,000 tons per year of lead products.

A more detailed description of process operations is presented in Attachment B-1, Project Description for The Doe Run Company's Resource Recovery Facility.

Waste Generation Processes

The resource recovery facility will receive three types of feed materials: 1) batteries from automobiles, 2) batteries from industries, and 3) drosses and fumes from the off-site industries. The recovery process and material flow are briefly described below.

. The resource recovery facility will receive automotive batteries, industrial batteries, fumes, drosses and other materials at the receiving dock of the battery processing facility. These materials are initially separated and placed in the battery bunker, industrial battery area or palletized battery storage area.

Except for batteries sent to storage, the batteries will be removed from their shipping pallets. The resulting solid waste (broken pallets, strapping, plastic shrink wrap) and general battery plant wastes will be collected and brought to the disposal container bays at the receiving area and/or the industrial battery processing area.

In the bunker area, automotive batteries will be dumped off pallets for cracking, acid draining, aging, and subsequent delivery to the smelter process. Batteries will be cracked and fed to a feed hopper in this area. Industrial batteries will be processed in the industrial battery processing area. These large batteries will be dismantled individually and the reclaimable materials delivered to the battery bunker. The cells and grids from industrial batteries will be transported by belt to the main processing area.

Batteries will also be stored on pallets in a building contiguous to the battery processing area. Palletized battery storage is designed to: 1) enable processing and production during periods of interrupted or reduced battery shipment, and 2) handle surges in battery receipts greater than the typical plant production rate. Capacity for battery storage in this building will be 15 days at the average production rate.

Fumes, drosses, and battery scrap originating from off-site sources will also be processed in the industrial battery processing area. The fumes are principally dust from battery manufacturing and other lead user facilities. The drosses are lead oxide and alloy compounds skimmed from lead process kettles. The battery scraps are pieces of lead from various facilities.

The fumes, drosses and battery scrap materials will be received at the loading dock in drums or containers and fork-lifted to the industrial battery area to be size-separated by screens. The fine material passing through the screens will fall into a metal container which is then transported to the paste storage building. There the paste will be placed on top of this fine material to prevent the material from becoming airborne. Next, the fines will be removed from the metal container by a screw conveyor to charge the reverberatory furnace.

The oversize materials (rejects) from the screening process will go to a cutting operation in the industrial battery processing area and be sent to the grid metal area and/or reverberatory furnace depending on its metallic content.

If dross or lead metal cannot be removed from the barrels, the barrels will be cut and the dross removed. The barrel pieces will be crushed and sent to metallic recovery operations off-site, and the dross sent to the furnaces. It is common for barrels containing fumes and dross to contain paper and other solid waste (general scrap), and it is necessary to provide for management of these solid wastes. Debris in the barrels that cannot be salvaged will be disposed of in a licensed solid waste disposal facility.

The main processing location is the breaker, desulfurization, and crystallization (BDC) building. At this location, automotive batteries and grid bundles from industrial batteries will be sent via a belt conveyor to the hammermill crusher. The material in the crusher will be washed on a vibrating screen to separate lead paste from other materials.

The lead sulfate paste will be pumped to a reaction tank where sodium carbonate combines with the paste to produce lead carbonate and a solution of sodium sulfate. Following processing in the reaction tank, the paste will be filtered and dewatered to 8 to 11 percent moisture content and gravity fed to a paste storage area. There the paste will be stacked prior to transport to the reverberatory furnace. Two concrete bunkers in the storage building provide for 20-day storage of paste. This storage allows for surges between the BDC process and the furnace and provides some additional drying before feeding to the reverberatory furnace.

Liquid from the paste filtering step will be neutralized with battery acid and transported to a crystallization tank for conversion to sodium sulfate crystals. The crystals will be conveyed by air to a storage silo next to the BDC building. The crystals are a marketable material and will be sold as detergent grade sodium sulfate.

Oversize materials from the vibrating screen of the BDC process will be hydrodynamically separated and delivered to roll-off disposal trailers located in bunkers next to the BDC building. The bunkers will store battery separators, ebonite (hard rubber), battery grids and poles, and waste materials. The recovered polypropylene will be conveyed to a surge bin and eventually blown into a truck.

Smelting in the reverberatory furnace is the next production step for lead paste in this secondary smelting process. The reverberatory furnace will smelt filtered battery lead paste (lead oxide), lead carbonate, purchased dross, dross from on-site refining, oxidic scrap, fumes and recycled dust. Lead bullion from the reverberatory furnace will then be refined in the refinery area. A high-lead reverberatory slag will also be tapped, frozen into chunks and transported to the blast furnace for further smelting. Process gases from the reverberatory furnace will be water quenched and filtered in the existing baghouse unit. The baghouse dust collected from the process, and ventilation gases will be recycled to the reverberatory furnace.

The above description of material flow at the resource recovery facility is a summary of facility operations. A more detailed description of recovery processes is given in Attachment B-1, Project Description for The Doe Run Company's Resource Recovery Facility.

B-2 TOPOGRAPHIC MAP

A topographic map is to be included in the Part B Permit Application according to Federal Rule 40 CFR 270.14(b)(19) and Missouri Rule 10 CSR 25-7.270(2)(B) 3 and 4. The Federal rule requires the following items to be included on the topographic map:

- map scale and date;
- 100-year floodplain area;

- surface water, including intermittent streams;
- surrounding land uses;
- wind rose;
- orientation of the map;
- legal boundaries of the hazardous waste management (HWM) facility site;
- access control (fences and gates);
- injection and withdrawal wells on-site and off-site;
- buildings, treatment, storage or disposal operations, or other structures (recreational areas; runoff control systems; access and internal roads; storm, sanitary and process sewerage systems; loading and unloading areas; and fire control facilities);
- drainage or flood control barriers;
- location of operational units within the HWM facility site where hazardous waste will be treated, stored or disposed.

Missouri rules require additional items to be included on the topographic map:

- original contours;
- proposed final contours;
- original surface water drainage patterns;

- proposed final surface water drainage patterns;
- layout of the leachate collection system;
- layout of the monitoring system;
- access roads;
- location of soil borings and trenches;
- major rock outcrops and sinkholes within the map area;
- occupied permanent residential dwelling houses within one-fourth (1/4) mile of the facility boundaries; and
- all available information on private and public wells, public water supply lines, and any aquifers, seeps, sinkholes, caves or mining areas within one-fourth (1/4) mile of the facility.

The topographic map for the resource recovery facility is attached to this section as Attachment B-2. Most of the information provided on the topographic map is self-explanatory. However, for clarification, some map information is reiterated or further discussed below.

Development of the resource recovery facility will require minor modification of the site grade southwest of the battery processing and receiving facility. The 5-foot contour interval and 1:2400 scale of Attachment B-2 is inadequate to show this modification. Detailed information regarding this modification is provided in Section 7 of the Design and Operating Report (Attachment D-3).

The contours of the topographic map were prepared by Surdex Corporation using aerial photography taken on April 4, 1987. The map scale is 1 inch equal to 200 feet. The map is drawn in 5-foot contour intervals.

Surface drainage within the Buick facility is indicated by drainage arrows. The topographic map does not indicate a floodplain area because no part of the facility is within the 100-year flood zone (see Section B-3). However, the map does indicate the location of surface water areas within and near the site. Within the legal HWM boundary, there are five ponds (Ponds A-E). There are also two ponds located off-site in the vicinity of the nearby mining operation. Surface stream flow in the vicinity of the site is intermittent. Crooked Creek flows north from the vicinity of the wastewater treatment facility. The Left Fork of Neals Creek flows to the east. On-site stormwater is collected and treated by the Doe Run wastewater treatment facility. Runon near the resource recovery facility is prevented by Highway KK and railroad tracks to the southeast and south of the battery processing building (number 1). No runoff is generated from the resource recovery facility.

The land use of the area surrounding the facility consists of a national forest and mining operations. The area is transected by few state and county roads and the nearby population is sparse. No occupied permanent residential dwelling houses are located within 1/4-mile of the recovery facility.

The wind rose is provided on the map for Fort Leonard Wood (1964-68). The predominant wind directions are between southwest and southeast.

The map indicates access control measures. These measures include fence lines, a security fence, and two access control gates. The security fence and control gates are located in the southern-most part of the site and consequently control access from Highway KK.

No injection wells are located on-site or near off-site. Five withdrawal wells exist on-site, three in the southwest portion of the site (number 4a) and two south of the maintenance shop area (number 4b). The latter wells will be abandoned and closed according to the Missouri Water Well Code within 90 days after issuance of the permit.

The map indicates the location of buildings and structures throughout the entire Buick facility. These include the resource recovery facility and the wastewater treatment facility. Additional drawings (Attachments B-2I, B-2II, and B-2III) indicate storm, sanitary, and process sewerage and water supply lines.

The map provides the locations of drainage control barriers (number 2). These barriers are found near Ponds A and E in the north central part of the site.

The locations of the leachate collection zone and hazardous waste storage are included on the map. These locations are within the battery receiving and processing facility (number 1). A more detailed layout of these areas is provided in Attachments B-2IV and B-2V.

The layout of the groundwater monitoring well system is shown on the topographic map. Four groundwater monitoring wells will be placed near the battery receiving and processing facility in the southeastern portion of the site. The groundwater monitoring system for the resource recovery facility is described further in the Groundwater Monitoring Plan, Attachment E-5. Additional groundwater monitoring wells are present around the primary smelter slag disposal area. These wells are also described in Attachment E-5.

Soil boring locations are also shown on the topographic map. There are ten soil borings within or near the building boundaries of the battery receiving and processing facility. Additional borings have been placed in the vicinity of the administration building, impoundments, and smelter slag disposal area.

B-3 FLOODPLAIN STANDARD

As required by 40 CFR 270.14(b)(11)iv, the owner or operator of a new RCRA-regulated facility must provide information concerning the location of the facility in a 100-year floodplain. This information includes:

- engineering analysis to indicate hydrodynamic and hydrostatic forces expected at the site as a result of a 100-year flood;

- structural or other engineering studies showing the design of operational units and flood protection devices at the facility and how these will prevent washout; and

- if applicable, detailed procedural description to remove hazardous waste to safety before the facility is flooded.

The battery receiving and processing facility would not be subject to flooding by the 100-year flood (1 percent chance flood) because a major drainage divide for surface flows runs through the site. There would be no inflow from off-site areas to the facility site. The drainage divide directs surface flows to either the Left Fork of Neals Creek Watershed or the Crooked Creek Watershed. Runoff from the 100-year flood will move quickly away from this facility in all directions because of the local topographic relief. South of the proposed battery processing facility and County Highway KK, ground elevations drop approximately 60 feet in a horizontal distance of 400 feet. Southeast of the proposed battery processing facility and the railroad tracks, ground elevations drop 65 feet in 400 feet. North and northwest of the site, topographic relief is less steep, approximately 20 feet in 300 feet. Runoff north and northwest of the site is collected in the existing storm sewers and diverted to the on-site wastewater treatment facility located near Pond B.

B-4 TRAFFIC INFORMATION

The information provided in this section is included as required by Missouri's 10 CSR 25-7.270(B) Permit Application, which incorporates by reference 40 CFR 270.14(b)(10). This regulation requires information on traffic patterns, estimated traffic volume (number and types of vehicles), and traffic control (for example, showing turns across traffic lanes, traffic control signals, and stacking lanes, if appropriate). Also required is a description of access road surfacing and load bearing capacity.

The main gate and resource recovery plant entrance of Doe Run's Buick facility is located approximately 2 miles south of State Highway 32 on Highway KK. Figure B-2 shows the on-site traffic patterns. Included on the figure is a chart showing the type of material being moved through the facility, where it came from and is going to, the type and capacity of the vehicle carrying the material, and the number of this type of vehicle moved through the plant per day and/or per week.

All roadways within the plant are two-way with the exception of the route across one truck scale and the entrance and exit from the employees' parking lot behind the main office, which are one-way as shown on the figure. There are two employee parking areas for the resource recovery plant. The first area is located behind the main office and contains 72 parking slots. The second area is located next to the changehouse on the entrance side of the plant. This area contains 48 parking slots. The parking areas were located such that employees and their cars are separated from the truck traffic flow.

Within the plant, most traffic consists of front-end loaders, forklifts, in-plant haul trucks and combi carriers, and tractor trailers. The company operates numerous front-end loaders and forklifts as part of its production operation. Additionally, a "combi carrier" will be operated which carries dewatered lead paste from the battery breaking facility to the furnaces. In-plant haul trucks (35 ton) or the combi carrier will move raw materials from the storage bunker to the refinery area.

A new railroad spur will serve the facility. Process reagents will be delivered via rail. Sodium sulfate and some finished lead product will be shipped off-site via rail. A yard locomotive will be used to pull these cars.

On the average, approximately 20 tractor trailer rigs enter and leave the plant each day. The facility can handle up to roughly 50 rigs a day. A yard tractor is maintained on-site for moving trailers within the staging area. The resource recovery plant entrance will have two entrance lanes and one exit lane.

Space exists at the secondary plant entrance for 20 incoming tractor trailer rigs to be in line for the scale without blocking traffic on Highway KK. The scale house attendant will direct traffic through the scale area and coordinate staging activities.

Traffic is controlled within the facility by 10 mph speed limit signs posted throughout the plant and one-way signs where appropriate. Traffic control signals are not warranted at this site.

The roads are constructed of 6 inches of bituminous concrete pavement (blacktop) on a base of compacted clay soil. Load-bearing capacity was designed at 40,000 pounds per axle. The facility's roads are capable of supporting the truck traffic incoming with raw materials (e.g., lead-acid batteries) and outgoing with finished products (e.g., lead ingots) for market.

B-5 SEISMIC INFORMATION

As required by 40 CFR 270.14(b)(11)i,ii, the owner or operator of a new RCRA-regulated facility must provide facility information which demonstrates compliance with seismic standards. To fulfill this requirement, a review was performed to identify if the facility is at a location which has a seismic standard. It was determined that the seismic standard is not applicable for the proposed resource recovery facility because the facility is not located in a county or election district listed in Appendix VI of 40 CFR 264. This means a demonstration is not necessary to show that the facility has no faults with displacements in Halocene time within 3,000 feet of the facility.

ATTACHMENT 4

SECTION 3

WASTE DESCRIPTION

3.1 INTRODUCTION

The purpose of this section is to describe the types of wastes which will be treated or stored at the facility. This section describes the waste's physical and chemical characteristics which are stored in the waste piles located in the battery storage bunker and the paste storage building. Also, this section describes the other waste streams which are generated during the process of battery component separation. This section describes the waste origin, location of storage, and the process description if the waste is treated, destroyed, or eliminated.

The objective of this section is to provide the waste characteristic information utilized during the development of the facility's design.

3.2 WASTE TYPE DESCRIPTION

3.2.1 Batteries

The major component of the incoming material stream processed at the facility is batteries. However, spent lead-acid batteries are exempt from regulations governing waste analysis (40 CFR 264.13) according to 40 CFR 266.80. Therefore, the characteristics of lead-acid batteries are not discussed in the waste characteristics section of the permit application. The design of the battery storage bunker does have to consider the waste characteristics of spent lead-acid batteries to verify that the materials selected and the design developed is compatible with the waste material which will be stored at this location.

The spent batteries will have a density of approximately 75 lbs. per cubic foot. The batteries stored in the battery storage bunker will be cracked using a rubber tired front-end loader. The battery electrolyte is sulfuric acid at approximately a 10 to 20 percent concentration. The battery consists of the following components, diluted sulfuric acid, polypropylene,

polyvinyl chloride, lead sulfate, lead oxide, and lead grids. Table 3-1 presents a composition analysis of the batteries. The only component of the batteries separated in the battery storage bunker is the battery electrolyte (diluted sulfuric acid), which flows to a sump and is pumped to a battery electrolyte process storage tank for utilization during sodium sulfate crystallization.

3.2.2 Battery Electrolyte

Battery electrolyte (dilute sulfuric acid) is separated from automotive batteries and sized industrial batteries in the battery storage bunker after the battery cases have been broken. The battery electrolyte will flow from the batteries onto the acid resistant primary liner. Acid will flow to a sump located on the first floor of the industrial battery processing building and be pumped to the acid storage tanks as shown in Figure 1-1.

The battery electrolyte is sulfuric acid at approximately a 10 to 20 percent concentration. Sulfuric acid will be generated in proportion to the total amount of raw materials entering the resource recovery facility building. Based on the experience of other resource recovery facilities, it is anticipated that 50 percent of the sulfuric acid will be liberated from the batteries while being stored in the battery storage bunker. It is estimated that 25 percent of the estimated 120,000 tons of raw materials entering the Buick resource recovery facility will be in the form of liquid dilute (10 to 20%) sulfuric acid. This means that 3,000,000 gallons of sulfuric acid will run off annually in the form of leachate, or on a daily basis, approximately 9,000 gallons of leachate must be collected and delivered to the acid storage tanks.

3.2.3 Lead Paste

Lead paste is separated from the other components of the battery after the batteries have been transferred from the battery storage bunker into the hammermill feed system. The lead paste fraction is removed from the other components of the battery using a vibratory wet screen. The paste fraction is washed from the broken battery through a 0.6 mm opening screen into a

paste slurry holding tank. The paste consist of lead sulfate and lead oxide compounds. The lead paste is processed through the desulfurization tank where it is combined with a solution of soda ash to create a lead carbonate paste and a sodium sulfate solution. The desulfurized paste will be stored in the paste storage building for approximately 20 days. Moisture content of the paste when it enters the paste storage should be in the range of 9 to 12 percent. After aging, the paste moisture content should drop to 8 to 10 percent. The desulfurized paste stored in the paste storage building will have a density of approximately 315 lbs. per cubic foot or a specific gravity of 5.

3.2.4 Ebonite

Ebonite will be separated from the battery during the battery breaking process at the hammermill and in the battery bunker storage building. The ebonite will be separated in the hydrodynamic separator along with separator material. The ebonite and separator material are dewatered and further separated into ebonite and separator material in the second hydrodynamic separator.

Ebonite is a hard, black rubber. The range in particle size of ebonite waste is 0.1 to 3 inches. Estimated density of ebonite waste is 100 lbs. per cubic foot. Ebonite has a heat content or approximately 10,700 BTU per lb. After the ebonite is separated from other battery components, the moisture content will be slightly greater than that of rubber itself because the water is used in the battery component separation process.

3.2.5 Separator Waste

As described in Section 3.2.4 the hydrodynamic separator will separate out the ebonite and separator waste. Separators are made of plastics. The range of particle size of separator waste is 0.1 inches to 3 inches. The estimated density of the separator waste is 20 lbs. per uncompacted cubic foot and 35 lbs. per compacted cubic foot. Separators have a heat content of approximately 4,500 BTU per pound. After the separators are separated from the other battery components, the moisture content will be slightly

greater than the plastic itself because water is used in the battery component separation process.

The separator material and the ebonite waste will be combined during disposal. These two components will be loaded into transfer bins in the location shown on Figure 1-1. The separator waste is described in more detail in Section C of the Part B permit application.

3.2.6 Grids and Poles

Grids and poles are the "hard metal" component of the battery. This fraction of the battery is separated in the hydrodynamic separator. The lead metallics sink and are removed from the bottom of the hydrodynamic separator where they are fed onto a conveyer which loads them into a storage bin for transfer over to the smelting furnace. As discussed in Section 3.2.1, the grids and poles compromise approximately 21 percent of the battery. The grids and poles will be melted in the rotary melter after transfer from the battery processing plant. The metallic content of the grid metal and poles will be greater than 88 percent. The lead melted in the rotary furnace is called "hard lead" because the antimony in the grid metal (1-5 percent) makes the lead harder.

An August 6, 1988 EPA memo (contained in Appendix A) discussing guidance for secondary lead smelter variances was used as a basis for developing the management method for the grids and poles. This memo presents the criteria which must be satisfied in order to grant a variance for the intermediate step in the reclamation process of lead bearing materials known as "plates" and "groups". For the purposes of Doe Run resource recovery design, the grids and poles described in this section satisfy the criteria for the variance determination. The grids and poles waste satisfies the criteria required to satisfy the variance as outlined in Section 260.31(c)(1)-(5), and "other relevant factors" (paragraph (c)(6)).

TABLE 3-1

BATTERY COMPOSITION[1]

(% Total Weight)

Component	Percentage
Polypropylene	7.7%
Diluted Sulfuric Acid (H_2O & H_2SO_4)	24.0%
Polyvinyl Chloride	3.8%
Lead Sulfate ($PbSO_4$)	24.3%
Lead Oxide	16.1%
Lead Grids and Poles	21.1%
Other (paper, wood, etc.)	3.0%
Total	100.0%

[1]Based on literature provided by Tonolli Company at Canada.

ATTACHMENT 5

ATTACHMENT B-1

PROJECT DESCRIPTION

FOR

THE DOE RUN COMPANY'S

RESOURCE RECOVERY FACILITY

AT THE BUICK, MO. SITE

NOVEMBER, 1988

DRATTB1/wp50/dk1

ATTACHMENT B-1

PROJECT DESCRIPTION

FOR

THE DOE RUN COMPANY'S

RESOURCE RECOVERY FACILITY

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PROJECT DESCRIPTION

FOR

THE DOE RUN COMPANY'S

RESOURCE RECOVERY FACILITY

1.0 GENERAL PLANT

1.1 Operating Capacity

The Buick resource recovery plant is designed to produce 60,000 tons of refined lead per year from a nominal feed consisting of 88,000 tons of SLI batteries, 20,000 tons of industrial batteries, and 12,000 tons of purchased scrap. The capacity of the plant can be increased to 75,000+ tons of lead per year by: A) treating junk batteries on a three shift basis through the battery breaker, B) increasing the operating days on the rotary melter by purchasing more metallic scrap, C) adding an additional month to the operating time of the reverberatory furnace and D) installing oxy-fuel burners on the reverberatory furnace.

2.0 BATTERY PROCESSING

2.1 Plant Entrance

The road from KK Highway will have two entrance lanes and one exit lane. Two lanes of eight trucks can line up prior to the scale house without blocking traffic on KK Highway. All trucks entering and leaving the plant will be weighed on a new truck scale with scale house. The truck scale will be of a load cell design without a pit.

2.1.1 Employee Parking

Two new employee parking areas will be installed for the resource recovery facility. The first area is located behind the Administration Building and

contains 72 parking slots. The second area is located next to the changehouse on the entrance side of the plant. This area contains 48 parking slots. The intent of the two parking areas is to keep the employees and their cars separate from the truck traffic flow.

2.2 Truck Parking

On the average day 27 trucks will unload junk batteries and fluxes, with 10 other trucks loading out secondary metal and waste. This will require parking and spotting space. This truck parking area is designed to handle a minimum of 80 parked trailers. A used truck tractor will be employed by Doe Run to manage and move spotted trailers.

2.3 Truck Washing

There will be two truck washing locations. The first location is adjacent to the unloading dock. The driver will have access to the use of a 100 psi hose to rinse out the bed of his truck. If the unloading dock station is in use, the second truck washing station is located on the exit side of the road leading out of the plant just prior to the scale house.

2.4 Truck Unloading

There will be four bays to unload truck trailers from the rear and one truck ramp to dump directly into the bunker. Side unloading of trucks will be performed in the main yard area with forklifts.

2.5 Unloading Dock

Up to four forklifts can operate on the dock removing pallets of batteries from the trucks at once. Batteries to be dumped into the bunker have to be unwrapped and unstrapped from the pallet. Wrapping plastic and strapping is removed on the dock. The plastic wrap and strapping material is discarded into

separate roll off tote cans at the edge of the dock. These tote cans are removed periodically when full by the contracted waste hauler. The batteries are then dumped into the bunker with the forklift. Batteries which need to be stored are hauled by forklift to the pallet storage area. This would occur when the plant is down, when more batteries than are processed on a single day are received, or when the bunker is full. Industrial batteries weighing up to 5-6 tons will also arrive at the unloading dock. These batteries can be transferred directly to the Industrial Battery Processing area and/or the battery palletized storage area. Battery or customer plant scrap can also be received at the unloading dock in drums (up to 55 gallon size). These drums are carried to the Dross/Scrap Treatment side of the Industrial Battery Treatment area by forklift with barrel tongs. An excess of receipts of plant scrap in barrels can also be taken to the palletized storage area.

For safety considerations, there will be a safety shower/eye wash located in the unloading dock area.

2.6 Palletized Storage

The plant will have 15 days of palletized storage for SLI batteries in addition to the 15 days of battery storage capacity in the bunker. Room has been left in the plan to add an additional 15 days to the covered palletized storage at a later date if needed.

2.7 Industrial Battery and Plant Scrap

Industrial batteries are unloaded by forklift in the unloading dock area and transferred to the Industrial Battery Area with the use of forklifts. Batteries will be of varied type, size, and weight. The battery is placed upon a cart on rails and wheeled to the lug cutting station to remove the copper lugs prior to entering the plasma cutting booth. The plasma cutter cuts the corners of the metal container. The cart is then pulled to the metal spreader station with the use of a tugger. After the metal sides have been spread out with the air powered spreader, the cart is further wheeled to the plate extractor station.

Here the plate extractor hoist assists in pulling out the battery cells. The hoist also swings the cells onto the grid conveyor after the acid is drained into a stainless steel trough. The conveyor transports the industrial grids to the shear. When the industrial grids reach the shear, they are cut into approximately 9-12 inch length pieces and dropped back into the battery bunker.

The industrial battery breaking area has an acid brick floor. The polycarbonate plastic sleeves found on the industrial cells are set aside for compacting with the polycarbonate compactor. This type of plastic cannot be mixed with the regular polypropylene plastic coming in with the SLI batteries. Acid spilled in this area will be collected into the trench going to the sump.

Plant scrap will be received from the scrap dealers and the toll battery customers in metallic drums, wood boxes, metal containers, etc. This material will be different from each customer and thus will have to be custom handled. In addition, each drum may have a mixture of materials in them. Thus the Plant Scrap area is designed to handle each drum with individual attention. The scrap material is unloaded on the unloading dock with forklifts from the truck trailers and brought to the scrap handling area. In the receiving area of the plant scrap area, the segregation of non-lead bearing material begins. Wood, plastic, iron, paper, separators, etc. are discarded into the metal containers for waste haulage. The barrel is then carried by forklift to a vibrating screen and turned over to empty the barrel. If the barrel contents do not drop on the screen, then the barrel is cut manually on the barrel cutting stand by a hand operated saw. Contents that spill on the screen are segregated into 3 fractions -- minus 2 inch, plus 2 inch-minus 8 inch, and plus 8 inch material. The chunks of softer dross are broken on a floor screen with a jib mounted breaker. The larger hard chunks of dross or metal that cannot be broken through the screen are loaded into a container for transport directly to the refinery. The empty barrel is then washed at the barrel washing station and discarded into a metal scrap material container after being compacted/crushed with the drum crusher, or if in good condition recycled back to the scrap dealer.

2.8 Junk Battery Storage Bunker

This major section of the plant will receive raw material feed consisting primarily of spent SLI batteries (automotive junks). The breaker area could also receive partially broken SLI batteries and decased and sized industrial groups.

The junk battery storage bunker area is 24,750 ft. capable of holding 5434 tons of batteries (with a battery density of 75 lbs./ft.). This is enough material to operate the battery breaking plant for 13.3 days.

Batteries are dropped into the bunker from the unloading dock with forklifts. Batteries can also be dumped into the bunker with a dump truck using the ramp. The intent of the bunker is to break as many of the battery cases as is possible with the dumping and moving of the batteries to the two storage areas inside the bunker. The dropping area will have railroad tie reinforced walls to allow the front-end loader to rack the batteries against the wall in order to break them up. The acid from the broken batteries is drained to a sump, and then pumped to acid tanks. The front-end loader then moves the batteries to either the storage area or to the feed hopper. The goal is to work the two storage areas alternately so the batteries have a chance to drain and age. The bunker will have 16 foot high acid resistant coated concrete walls and a special asphalt floor.

The front-end loader will have a 3 cubic yard stainless steel bucket.

2.9 Hammermill Feed System

Feed material is loaded into a stainless steel, ventilated hopper (55 ton capacity) by means of a large front-end loader. Material is discharged to a feed belt by means of a vibrating pan feeder. Feed material passes under an electromagnetic cross belt and a metal detector as the material travels to the hammermill by belt. The electromagnetic conveyor carries the magnetic material to a hopper located under the industrial battery processing section of the plant. A metal detector is also hooked to the conveyor prior to the hammermill. If

metal is detected, the conveyor to the hammermill will then be shut down. The feed is milled to reduce the size and liberate components of the battery. The stainless steel hammermill is vented to the scrubber to keep acid mist and particulate contained within the mill.

2.9.1 Vibrating Wet Screen

This equipment receives crushed battery feed from the hammermill and spray washes the paste fraction of the broken battery through a 0.6 mm opening screen into a paste slurry holding tank. The oversize material is moved by the vibration of the screen across the deck until it is discharged to the hydrodynamic separator system. The screen is connected to a 15 Hp source. The screen has a deck dimension of 4.9 ft. wide by 16.4 ft. long and is constructed of stainless steel. The screen is hooded and vented to the battery breaking plant scrubber.

2.9.2 Hydrodynamic Separator

The oversize from the wet screen is delivered to a hydrodynamic separator in which the polypropylene is floated off the top and removed by screw to a blower for loading to a van. The lead metallics sink and are removed by a conveyor at the bottom of the hydrodynamic separator. An intermediate fraction is removed consisting of ebonite and separator material which are dewatered and further separated into ebonite and separator material in a second hydrodynamic separator. The hydrodynamic separator separates the materials by using counter gravity water flow.

Both hydrodynamic separators are constructed of stainless steel. The first separator weighs 3.6 tons and the second separator weighs 2 tons. The first separator is connected to a 3.7 Kw source to operate the skimming paddles to remove the floating material from the hydrodynamic separator. The second separator is connected to a 5.1 Kw source for the paddle skimmers.

The dewatering screens are also constructed of stainless steel. The decks of the screen have 1 mm openings. The first deck has an effective dewatering area of 9.8 ft. by 3.3 ft. and requires an installed power of 4 Kw. The second deck has an area of 8.2 ft. by 3.3 ft. and requires an installed power of 4 Kw.

2.10 Desulfurization

The two reaction vessels are constructed of 316 stainless steel. They have a volume of 1060 Ft each and weigh 5.5 tons. These tanks receive the paste from the paste centrifuge where the paste has been partially dewatered. The excess water from the centrifuge is ultimately returned to the vibrating screen. A solution of sodium carbonate (coming from the soda ash solution tank) is mixed with the dewatered battery paste in the reaction tanks. The soda ash solution is mixed with the paste with stirrers. These stirrer blades are also made of 316 stainless steel and require an installed power or 74 Kw each. The soda ash (Na_2CO_3) reacts with the $PbSO_4$ in the battery paste to produce a $PbCO_3$ paste and a Na_2SO_4 solution. The objective of this reaction is to leach the maximum amount of sulfur from the battery paste into the solution so it can be carried to the crystallizer. The remaining solid material will have low sulfur content for ease of smelting in the reverberatory furnace. In addition, the low sulfur content battery paste will minimize the release of SO_2 during the smelting step in the reverberatory furnace.

The desulfurized paste from the bottom of the reaction tanks is then pumped to the filter press with the desulfurated slurry paste pumps requiring an installed power of 150 Kw each.

The soda ash for the system is unloaded with a railroad car unloader, and pneumatically conveyed to a soda ash storage bin. From this main bin the soda ash is metered to the soda ash solution tank. The soda ash will be dissolved to a 30% Na_2CO_3 solution for reaction with the battery paste. The soda ash is delivered to the screw conveyor and weighed on a weigh belt. The soda ash solution tank and lines carrying the soda ash solution have to be insulated, heated and be equipped with automatic flushing system.

2.11 Filtration

The desulfurized paste is filtered in a membrane type polypropylene recessed plate filter also constructed of stainless steel. The objective of this equipment is to remove the Sodium Sulfate (Na_2SO_4) solution from the paste. The goal is to reduce the moisture content of the desulfurized paste to 9% or less. The Na_2SO_4 solution is then sent to the neutralization reactors. These 530 ft^3 stainless steel insulated tanks are used to make the final pH adjustment on the Na_2SO_4 solution before pumping this pregnant solution to the crystallizer. The pH in the Na_2SO solution is controlled by back titrating clean battery acid coming from the electrolyte storage tanks. Before sending the pregnant Na_2SO_4 to the crystallizer, it is filtered through a smaller membrane type plate filter to remove the last remaining particulate material from the solution.

2.12 Sodium Sulfate Crystallization

The neutralized Sodium Sulfate liquor is pumped to the holding tank, then to the crystallizer for the manufacture of anhydrous sodium sulfate crystals. Prior to entering the crystallizer, the pregnant solution is preheated with a stainless steel heat exchanger to a temperature of 225 degrees F. Liquor from the crystallizer is recirculated through a Liquor Circulation Heater which is made of stainless steel. Thickened crystal slurry is drawn off the crystallizer and pumped to a stainless steel hydroclone to remove most of the liquor from the salt crystals prior to sending the thickened salt crystal slurry to the centrifuge. Most of the remaining liquor is removed from the salt slurry in the centrifuge. The crystals are conveyed by conveyor into a hot air pneumatic conveyor powered by a combustion chamber which moves the moist salt pneumatically. As the salt is pneumatically conveyed the last remaining moisture is driven from the salt to the hot air. The liquor removed from the salt crystals at the hydrocyclone is returned to the crystallizer.

The salt is conveyed to a stainless steel insulated cyclone Product Separator. The separator has a diameter of 4.9 ft. with a height of 13.1 ft.

The salt is deposited in a Product Silo made from carbon steel. The tank is insulated and has a capacity of 5650 cubic feet. The diameter of the tank is 26 ft. by 46 ft. high. The product tank capacity 264 is tons of product sodium sulfate.

2.13 Paste Storage

The paste storage building contains two bunkers for the storage of paste.. The capacity of paste storage is 20 days production. The paste storage building has an area of 6800 ft^2 and can hold 3136 tons of paste. The paste is moved in the paste storage area by the same dedicated front-end loader used in the battery bunker building. The paste is picked up from the floor under the filter press by the front-end loader and stacked in one of the two paste bunkers. This loader also fills the tote bin for the Combi carrier that transports the feed to the reverberatory furnace.

Letting the paste sit and age before charging to the Combi tote bins allows the paste to further oxidize and dry to lower moisture contents. Low moisture contents in the paste will allow improved handling qualities of the paste. Also, the lower moisture in the desulfurized feed will allow higher feeding rates of paste to the reverb furnace with less chances of moisture related steam "explosions".

2.14 Paste Transportation

The paste is transported to the reverb furnace area with the use of tote bins which can be carried by a Combi Hauler. The bins are capable of carrying 50 tons of paste per trip. Each tote bin will have its own set of screws to feed the paste material to the skip hoist. The tote bin is placed on a scale platform next to the skip hopper charging station. The tote bins have at least 80 degree slopes to the sides. All subsequent bins and hoppers feeding paste to the reverberatory furnace have at least 80 degree slopes to allow the paste to feed through hoppers.

3.0 REVERBERATORY FURNACE

3.1 Feed Weigh Station

The Combi tote bin is placed on the weigh scale for weighing of the material as it is discharged to the skip hoist. The paste is screw fed into the skip hoist. Coke is also weighed and screw fed to the skip hoist bucket from a separate hopper. The skip hoist carries the material to a two hour capacity bin above the screw which feed the rams.

3.2 Charge Hopper and Ram Feeders

Material is conveyed from the 2 hour holding bin by screws at a rate between 200 and 300 pounds per minute to the rams. The ram stroke per cycle will take approximately one minute. The rams operate counter cyclical to each other. Each ram stroke will push into the furnace approximately 1.5 cubic feet of material.

The east side ram has a hopper whereby the 2 to 8 inch material generated at the industrial building screen can be introduced to the reverberatory furnace. This material is lifted to the hopper above the east ram with the use of a skip and the existing 45 ton crane over the reverberatory furnace. A supplementary coke hopper is located over the screws to make the final coke adjustment to the furnace.

3.3 Reverberatory Furnace

The reverberatory furnace has internal dimensions of 17 ft. x 35 ft. Draft to the furnace should be maintained at a minus 0.1 to minus 0.2 inches for good operation. Draft control is maintained with water cooled dampers located on the discharge side of the reverberatory furnace throat.

3.3.1 Furnace Burners

The burners for the reverb furnace will be rated at 10,000,000 Btu/Hr. each. The furnace will have (3) NAMCO Fuel Directed Burners Model 4385-10, with a precise fuel-air proportioning system called a mass-flow metering system.

3.3.2 Furnace Refractory

The brick in the furnace is of the chrome-magnetite type with the exception of the flat Deitrich type roof. The brick used in the roof is of a 70% Alumina brick. The roof at the burner end of the furnace is 4 ft. 4 inches above the top of the molten slag line. Starting 17.50 ft. from the burner end of the furnace, the roof slopes toward the slag layer. Gases exit the furnace at 2300-2400 degrees F.

3.3.3 Slag Tap

The slag tap has a water cooled jacket under the slag tap notch brick. The slag tap area is ventilated. The slag is continuously tapped via a water cooled launder into a slag mold wheel. Each mold will hold 2 tons of slag. It is estimated on an average the mold will be filled in one to one and a half hours. There are six molds prior to the tipping station.

3.3.4 Lead Tap

The lead tap does not have a water cooled jacket. The lead tap is made intermittently through an underflow siphon leadwell. The lead tap area is ventilated.

3.3.5 Furnace Off-Take

The off-take gases leave the furnace through a sloped throat at 2300-2400 degrees F. Once clearing the throat, the gases drop vertically into a brick-lined cooling chamber.

3.3.6 Furnace Gas Cooling

On the horizontal lower level of the cooling chamber, the gases are cooled to 800-1200 degrees F with the use of a Sonic Brand air/water spray. The gases leave the cooling chamber vertically and at this point should be cool enough to handle in steel ducts (1000 degrees F).

4.0 SOFT LEAD REFINERY

Soft lead is lead produced from low antimony content bullion coming from the reverb furnace. Hard lead is a high antimony content lead normally derived from the grid metal portion of the battery.

Lead is tapped intermittently through a launder from the reverberatory furnace to a 225 ton (D-3) kettle. The launder and kettle are ventilated.

4.1 Drossing Kettle

The D-3 kettle is considered the drossing kettle. Lead from the furnace is received at 1000 to 1500 degrees F. at a rate of approximately 100 tons per day. The 2250 ton kettle is drossed on an average of once every two to five days depending on the amount of dross generated. Agents used to create a dry dross would include coke breeze, saw dust, and ebonite. The dross from this kettle is recycled to the reverberatory furnace. The bullion from the reverb furnace will carry less than 0.5% Sb. When the drossing kettle is filled (approximately once every 2 days of operation), the lead is pumped from underneath the dross layer to the refining kettle (D-4). Lead is moved from kettle to kettle in approximately 200 ton lots.

4.2 Refining Kettle

The 225 ton refining kettle (D-4) is normally used to remove the copper from the lead. This is accomplished by stirring into the lead a mixture of

pyrite and sulfur. The dross containing the copper is then skimmed off the kettle and sent to the reverb furnace normally as a dry dross. The copper free lead metal is treated for tin, antimony, and arsenic removal then pumped to the Cleanup Kettle again in approximately 200 ton lots.

4.3 Cleanup Kettle

Cleanup Kettle (D-5) of 225 ton capacity is normally used to remove the last remaining antimony from the lead. This step is accomplished by stirring in caustic and sodium nitrate in 2 or 3 separate steps. The dross generated between the steps is skimmed from the kettle either by hand or with the assistance of the overhead crane and recycled to the reverberatory furnace. After the metal is checked for the final antimony content and found acceptably low in antimony and other impurities, the metal is pumped to the 2250 ton Casting Kettle (R-7) again in about 200 ton lots.

4.4 Alloying Kettle

The 225 capacity Casting Kettle is used for final cleaning of the soft lead prior to casting. Additional cleaning steps can be performed by stirring small lots of caustic and niter into the lead followed by skimming the dross from the lead. These drosses are also recycled to the reverberatory furnace. As a final step prior to casting the metal, charcoal is stirred into the lead. The dross from this stirring is also returned to the reverberatory furnace. There are certain special customers who require a certain alloy made from soft lead. This kettle is then used to make these alloys. The lead is then pumped to the Casting Kettle.

4.5 Casting Kettle

Depending on the alloy and the sequence of treatment, the soft lead is then ready for casting. This last kettle is used to cast to the new 65 lb. casting machine or to the smaller link machine.

4.6 Casting Equipment

The soft lead, or alloyed metal coming from the soft lead production can be cast into 1 ton blocks, 60 lb pigs, or 25 lb links (5 lb x 5). A new 60 lb casting line is included as an addition to the refinery casting equipment.

5.0 HARD LEAD ROTARY MELTING AND REFINERY

5.1 Rotary Melter

The rotary melter continuously melts grids and poles from the battery processing plant. The rotary melter will also have the capability to melt purchased grid metal and lead metal lugs containing greater than 80% metallic lead. In general, though, the metallic content of the grid metal and poles will be greater than 88%. The lead melted in the rotary furnace is called hard lead because the antimony in the grid metal (1 to 5%) makes the lead harder. The paste portion of the battery is antimony poor thus will produce a soft lead when reduced to metal in a furnace.

The ashes, drosses, and slag material in the grid metal and poles are separated by the rotary melter, dropped into a tote box for return to the reverberatory furnace. These drosses, ashes, and slags will be of the 40% to 70% lead content containing a considerable amount of antimony (1% to 10% Sb). The fumes generated by the furnace will normally run 50% to 60% lead. These fumes are sent to the baghouse for ultimate recycle to the reverberatory furnace. The rotary melter will operate for no more than 12 days per month on a 24 hour per day basis if no additional grid metal is purchased than that produced at the processing plant.

5.1.1 Grid Metal Storage

The grid metal storage building will have a total area of 3340 ft^2 capable of holding 30.7 days of grid metal production from the battery breaking plant. The grid metal and poles are brought to the grid metal storage area with trucks

and unloaded in the storage building. There will be adequate capacity to stockpile 3166 tons of the heavy grid metal and pole material (density: 257 lb/ft^3) in the storage building. The grid metal is charged to a 2 hour hopper with the use of an existing front-end loader.

5.1.2 Rotary Melter

Material is fed into the rotary furnace melter from the 2 hour hopper with a belt. The belt discharges onto a vibrating feeder. The feeder is used to evenly feed a transfer conveyor which delivers the material to the rotating furnace. Material is charged to the feed end of the furnace at a 9.35 ton per hour rate. The discharge end of the furnace contains the burner producing the necessary heat for melting. As the material traverses the length of the furnace counter flow to the heat, the material first dries out, and then melts followed by some smelting. The material moves from the top of the furnace to the discharge end by the spiral action of the sloped drum. This gradual movement of material through the length of the drum insures complete melting and smelting of the material. In addition, the combustible materials that may be in the grid metal are burned off.

5.1.3 Dross System

Drosses formed float on the molten lead bath in the bottom end of the sloped drum, and are automatically separated with a plow device. In this fashion the drosses are separated from the metallic lead continuously. Lead is overflowed to one side of the plow while the dross is dropped into tote boxes under the rotary furnace. The lead tapping temperature should be in the order of 750 to 950 degrees F. This temperature should be regulated with continuously monitoring thermocouples placed in the stream of the lead leaving the rotary melter.

The furnace is equipped with a process fume collecting hood at the feed inlet capable of handling 3000 SCFM. The casting or discharge end of the furnace is hooded for hygiene reasons to carry 3000 SCFM of ventilation air.

5.2 Hard Lead Refinery

5.2.1 Receiving and Drossing Kettle

Metal is received in the R-6 Receiving and Drossing Kettle at a rate of 8 to 9 tons per hour. The dross is skimmed off the receiving kettle when required and returned to the reverb furnace. In 200 ton lots, the lead is pumped to the R-8 Refining Kettle.

5.2.2 Refining Kettle

This existing kettle is used to decopperize the hard lead with the addition of sulfur and pyrite. The addition of this flux and the skimming of the kettle is accomplished with the overhead crane. The drosses from the refining operation will also be returned to the reverb furnace. The lead is then pumped in 70 ton lots to the first of 3 new 70 ton kettles. The smaller kettles are required to make the many special alloys demanded by the battery companies. The manufacture of smaller lot sizes helps limit the carrying of large quantities of inventory for the many different alloys.

5.2.3 Cleaning Kettle

Detinning and antimony removal and/or preliminary alloying can be performed in the new 70 ton R-9 kettle prior to pumping to the new 70 ton Alloying Kettle (R-10) where the final metal alloy adjustments are made.

5.2.4 Alloying Kettle

The final alloy cleaning and/or adjustment is made in this kettle. This kettle is also used as a holding kettle until the final analysis has been cleared by the laboratory.

5.2.5 Casting Kettle

This is also a 70 ton new kettle. Casting from this kettle is normally made to the new 65 lb. pig machine.

5.2.6 Casting Equipment

More normally, the hard lead is cast into a 65 pound pigs; however, the capability exists of casting the metal into 100 pound pigs or 2000 pound ingots.

6.0 BLAST FURNACE

The blast furnace will only operate when the reverb furnace is down for repair during yearly turn-around.

6.1 Reverb Slag Storage

The material tapped from the reverb furnace is called a slag and will have a high lead content (50 to 70% Pb) with a high antimony content (1 to 5% Sb). This material will be stored in the large material bunkers at the entrance end of the plant. On a campaigned basis, the furnace will be started to smelt this slag into a high antimony content hard lead bullion. This bullion can be used for high antimony content industrial battery alloys and/or blending with soft lead to make lower antimony SLI battery alloys.

6.2 Blast Furnace Bullion Refining

The refining steps are similar to those for bullion from the rotary melter in that the metal will have to be decopperized with sulfur and pyrite, followed by alloying constituent adjustments up or down depending on the type of bullion being made during the day.

6.3 Blast Furnace Slag

The slag produced will have a lead content between 1 and 3% depending on the operating condition of the blast furnace. This slag is a waste material, and depending on its toxicity will be disposed to a landfill or a hazardous waste depository.

ATTACHMENT 6

SEIRC
3,500 Iron County H.z
Doe Run Resource Recovery Co

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 57 Jefferson City, MO 65102

April 3, 1992

MAY 29 1992

Mr. Kenneth R. Buckley
The Doe Run Company
Resource Recycling Division
Buick Facility
Highway KK
Boss, MO 65566

RE: Resource Recovery Certification RR0344
Classification - R2

Dear Mr. Buckley:

This letter is to inform you that the Department of Natural Resources has completed the review of your certified resource recovery facility application form. After a review of your application and the supporting documents, the department hereby certifies, for hazardous waste resource recovery, The Doe Run Company, Buick Facility to accept and reclaim lead and components from spent lead-acid batteries, lead waste and scrap battery components contingent upon the following conditions:

1. The operator shall comply with 10 CSR 25-9.020 and all plans and processes described in the certified resource recovery application.

2. The operator shall reclaim/recover D008, K069, scrap battery components, spent lead-acid batteries and recyclable lead-bearing wastes as listed in the application and in the amounts specified.

3. The facility must operate in compliance with all applicable permits and regulations.

4. This facility must operate in compliance with all applicable regulations for smelting, melting and refining furnaces burning hazardous waste to recover metals.

If you have any questions regarding compliance with your certification, please contact Mr. Wane C. Roberts at (314) 751-3176.

Sincerely,

HAZARDOUS WASTE PROGRAM

Nicholas A. Di Pasquale
Director

NAD:wrm

Enclosure

c: Mr. Bob Stewart, EPA Region VII
Mr. Mike Kearney, Buick Facility
Southeast Regional Office

DEPARTMENT OF NATURAL RESOURCES

CERTIFIED
RESOURCE RECOVERY FACILITY

Certification for resource recovery is issued to:

The Doe Run Company - Buick Facility

For the facility located:

Highway KK
Boss, MO 65566

CERTIFICATION NUMBER: RR0344

A copy of this certificate must be available at the facility during operation.

This certification is valid from the date signed for a period of two years, in accordance with the Certified Resource Recovery Facility Application Form approved by the department. Only wastes listed in the approved application are to be processed at this facility.

It is understood that the acceptance and use of this certification subjects the operator of the above named facility to the applicable requirements of the Missouri Hazardous Waste Management Law and the rules thereunder specifically 10 CSR 25-9.010.

This certification applies only to resource recovery facilities certified under Missouri's Hazardous Waste Management Law; it does not apply to other environmentally regulated areas.

April 3, 1992
Date

G. Tracy Mehan, III
Director, Department of Natural Resources

By
Director, Waste Management Program

MO 780-0045 (1-89)

Form RR-3 6-85

ATTACHMENT 7

3,500 IRON COUNTY
DOE RUN RESOURCE REC/CLG.

MAY - 4 1992

THE DOE RUN COMPANY
RESOURCE RECYCLING DIVISION
BUICK FACILITY

KENNETH R. BUCKLEY
GENERAL MANAGER
314-626-3495

HWY KK
BOSS MO 65440
314-626-4813 • FAX 314-626-3304

April 30, 1992

Mr. Nicholas A. Di Pasquale, P.E.
MODNR - Hazardous Waste Program
P.O. Box 176
Jefferson City, MO 65102

RE: The Doe Run Company - Resource Recycling Division
Buick Facility, RCRA Permit No. MOD 059 200 089
Missouri Resource Recovery Certificate No. RR0344.

Dear Mr. Di Pasquale:

By this letter Doe Run is seeking a Class 1 modification to the above referenced facility permits. The modification would allow the storage and treatment of different wastes in containers which do not require the addition of units or a change of management standards. Appendix I to 40 CFR part 270.42 allows the modification sought (See H.4.b.).

The Buick Resource Recycling Facility is a secondary lead recycling facility. Finished lead is produced from the recycling of several raw materials including lead-acid batteries, scrap metal, and other lead-bearing materials. The RCRA operating permit issued to Doe Run in 1989 allows for the operation of a RCRA materials management units which are described in the Part B permit application. The above referenced permits allow storage and treatment of D008 and K069 hazardous wastes.

The Buick Facility has received one truck load of a new material and has been approached by other facilities with similar materials that can be effectively treated at a secondary lead smelter. The materials received are filled with predominantly lead contaminated wastes which have trace amounts of arsenic (As) and cadmium (Cd). Analytical results are attached for your review. The trace quantities of As and Cd are sufficient to cause the material to fail the Toxicity Characteristic Leach Procedure (TCLP). Thus, the material was manifested to Buick as D008 (lead), D004 (arsenic), and D006 (cadmium). Buick elected to retain the material based

on a telephone conversation between Mr. Mike Kearney of my staff and Mr. Frank J. Dolan, MODNR - WMP. This permit modification request is a direct result of that conversation.

Buick is not authorized to store or treat D004 (As) or D006 (Cd) hazardous wastes. However, the materials received to date and under evaluation for future receipt are compatible with other lead contaminated materials being received, handled, and treated by the Buick Facility. The additional contaminants would not pose a problem to the Buick facilities or processes. Arsenic and Cadmium are normal constituents in secondary lead smelting materials and products. In fact, both As and Cd are frequently listed in customer specifications.

Buick has also located three other EPA listed hazardous wastes (K002, K003, and K046) which are likewise treatable in the Buick equipment without special handling or processing. The wastes are predominantly lead contaminated but contain trace amounts of other EPA toxic constituents. See attached analysis. The trace constituents would not alter the treatability of the materials or adversely affect the secondary lead processes in use at Buick. The trace constituents would report to and be captured in the blast furnace slag. The toxicity of the slag (i.e., TCLP results) is not expected to change. The blast furnace slag would continue to be shipped to a permitted RCRA hazardous waste landfill for disposal.

Another material which should be added on a limited basis to the permits is D002 (corrosive) wastes. Some battery suppliers prefer to store and ship "dry" batteries. The sulfuric acid battery electrolyte is sometimes drained into a large plastic carboy and shipped along with the batteries. In most cases the acid is poured right into the bunker for conversion into sodium sulfate by the Engitec process. There could be occasions when the acid might need to be stored in the palletized storage area pending restart of the BDC process. Doe Run is only interested in adding D002 to the permit for the sole purpose of receiving and treating weak sulfuric acid. No other corrosive wastes would be accepted.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is

true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Please contact Mr. Mike Kearney at 314-626-3406 if you have questions or need additional information.

Very truly yours,

Kenneth R. Buckley
General Manager

cc: Mr. James A. Burris, P.E., MODNR - PBRO
Mr. Wane Roberts, MODNR - WMP

ATTACHMENT 8

3,500 TPD Pb Doe Run Resource Recycling H.W.

JOHN ASHCROFT
Governor

G. TRACY MEHAN III
Director

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102

July 15, 1992

Mr. Kenneth R. Buckley
General Manager
The Doe Run Company
Buick Resource Recycling Division
Hwy KK
Boss, MO 65440

RE: Recovery of Other Listed Wastes

Dear Mr. Buckley:

In your letter of April 30, 1992, you requested a Class 1 modification of your RCRA permit, MOD 059200089, and Resource Recovery Certification, RR0344. The modification request includes the storage and treatment of characteristic wastes D004 (arsenic) and D006 (cadmium) as part of the D008 (lead) wastes. For listed wastes, the listing for

K002 (waste water treatment sludges from the production of chrome yellow and orange pigments),
K003 (waste water treatment sludges from the production of molybdate orange pigments), and
K046 (waste water treatment sludges from the manufacture, formulation, and loading of lead based initiating compounds)

are requested for inclusion with

K069 (emission control dust/sludge from secondary lead smelting).

These additional wastes shall contain recoverable amounts of lead, or lead and metals that can be used as alloys. The acceptance, handling and processing of these wastes shall not violate the requirements under the authority of the boiler and industrial furnace (BIF) rule currently implemented and administered by the EPA.

The characteristic waste D008, corrosive wastes, are being requested for disposal through the battery acid recovery system. The request specifies sulfuric acid to be converted into sodium sulfate by the Engitec process. The waste acid shall be limited to sulfuric acid containing only metallic constituents.

The wastes listed above are to be permitted to be stored in the container storage area. These changes are being made under 10 CSR 25-7.270 and 40 CFR 270.42 and Appendix I clause F.4.b.

Resource Recovery Certification, RR0344, for the Doe Run Company - Buick Resource Recovery Facility has been modified in accordance with 10 CSR 25-9.020((3)(E)2. for the addition of recyclable waste streams to the certification, provided this modification to add waste streams to the certification does not constitute a change in the operation of the recycling process or conditions certified in the original resource recovery certification.

If you have any questions, please contact Daniel M. Tschirgi, P.E.

Very truly yours,

DIVISION OF ENVIRONMENTAL QUALITY

David A. Shorr
Director

DAS:dfj

c: James A Burris, P.E., Southeast Regional Office
Ms. Deborah Kennedy, U.S. EPA Region VII RCRA Permits

ATTACHMENT 8A

JOHN ASHCROFT
Governor

AUG 0 6 1992

Ron Kucera
Acting Director

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102

July 31, 1992

Mr. Kenneth R. Buckley
General Manager
The Doe Run Company
Buick Resource Recycling Division
Hwy KK
Boss, MO 65440

RE: MOD059200089 July 15, 1992, Class one Modification; Clarification/ Correction

Dear Mr. Buckley:

Per recent discussions with Mr. Michael Kearney of your staff, this letter is to correct and clarify certain aspect of the referenced permit modification. The last paragraph of the first page of the modification should have allowed only D002 wastes. It incorrectly stated D008 wastes.

The July 15, 1992, modification does not permit the storage of additional waste volumes, capacities, weights (VCW). The VCW of the additional wastes codes are to be included in the capacity allowed in the original permit.

We trust this corrects and clarifies the issues which were discussed. If you have any questions, please do not hesitate to call. Please keep this letter and the July 15, 1992, modification with your permit.

Sincerely,

HAZARDOUS WASTE PROGRAM

David G. Freise, P.E.
Corrective Action Unit Chief

c: Debra Kennedy, U.S. EPA, Region VII
Poplar Bluff Regional Office

ATTACHMENT 9

3,500 Iron County Mo
Doe Run Resource Recovery
Buick

THE DOE RUN COMPANY
RESOURCE RECYCLING DIVISION
BUICK FACILITY

MAY 22 1992

KENNETH R. BUCKLEY
GENERAL MANAGER
314-626-3495

HWY KK
BOSS, MO 65440
314-626-4813 • FAX 314-626-3304

May 5, 1992

Mr. Nicholas A. Di Pasquale, P.E.
MODNR - HWP
P. O. Box 176
Jefferson City, MO 65102

Re: **The Doe Run Company - MOD 059 200 089**
Buick Resource Recycling Facility

Dear Mr. DiPasquale:

The purpose of this letter is to request from the Missouri Department of Natural Resources ("DNR"), a Class I permit modification to the Resource Conservation and Recovery Act ("RCRA") operating permit issued by DNR to The Doe Run Company ("Doe Run" or "the Company") for the operation of RCRA materials management units at the Company's Buick Resource Recycling Facility ("Buick") in Boss, Missouri. Specifically, Doe Run requests that DNR modify the RCRA permit to reflect the on-site operation of "tanks", rather than the operation of "waste piles".

It is our understanding that a Class 1 modification covers changes in operating permit terms or provisions that "do not substantially alter the permit conditions or significantly affec the overall operation of the facility." 53 **Fed. Reg.** 37,914 (1988). The change in designation requested by Doe Run will not necessitate or result in any material changes in the constructio or manner of operation of the materials management unit. Currently, the units are constructed and operated in accordance with all regulatory requirements applicable to a RCRA tank.

BACKGROUND

Buick is a lead recycling facility. Finished lead is produc from the recycling of several raw materials including lead-acid batteries, scrap metal, and other lead-bearing materials. The RCRA operating permit issued to Doe Run in 1989 allows for the operation of RCRA materials management units which are describe in the Part B permit application as the "battery bunkers" and t "paste storage areas." The storage units are distinct, but contiguous areas within a single materials management unit. In preparing the part B application for the unit, Doe Run was

informed by DNR representatives that the type of units proposed by the Company would be required to meet the technical deign and operating requirements for a "waste pile" as promulgated at 40 C.F.R. Part 264, Subpart L and 10 C.S.R. 25-7.264. Accordingly, the application was prepared in a manner specifically addressing the compliance of the proposed units with those requirements.

Although the permit application describes the units in question as waste piles, and specifically addresses the regulatory requirements applicable to waste piles, Doe Run maintains that the permitted structures actually exceeds the standards of environmental protectiveness prescribed for waste piles, and that the structure meets all the state and federal regulatory requirements applicable to a RCRA "tank." Accordingly, Doe Run requests that the operating permit issued for these units be modified to correctly designate the structures as RCRA tanks. Because the materials management units, from inception through construction, were designed in a manner meeting the technical standards applicable to a tank (i.e., no structural modifications have been made to the units subsequent to the permit application to ensure its compliance with RCRA tank standards), Doe Run maintains that such a modification reasonably can be made by DNR as a Class 1 administrative modification.

DISCUSSION

Environmental Protection Agency ("EPA") regulations implementing RCRA define the term "tank" as: "a stationary device, designed to contain an accumulation of hazardous waste which is constructed primarily of non-earthen materials...which provide structural support." 40 C.F.R. Part 260.1. The regulations also provide that tank systems be constructed in accordance with specific design requirements (e.g., adequate foundation, structural integrity, compatibility with stored materials, secondary containment and leak detection systems), and be operated in accordance with certain operating requirements (e.g., regular inspections, collection of leak detection system data). 40 C.F.R. Part 264, Subpart L. 1/

The primary liner system at the Doe Run facility is an acid-resistant asphalt-based liner system which completely covers the floor of the battery bunkers and paste storage areas, and which

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1/ DNR regulations incorporate by reference EPA regulations at 40 C.F.R. Part 264 except where otherwise specified. 10 C.S.R. 25-7.270.

continues up the walls of the unit to a height of approximately 18 inches. The liner is extended above an 8-inch concrete floor constructed of acid-resistant aggregate and two layers of acid-resistant reinforcing steel. The steel layers also continue from the floor up the walls of the unit. This configuration provides a structurally stable base for the liner which is not susceptible to cracking or other deterioration.

The materials management units have also been constructed with a secondary containment and leak detection liner system underlying and completely surrounding the primary liner. The containment and leak detection liner is an acid-resistant flexible membrane, the purpose of which is to capture any liquids escaping the primary liner and to identify the source of any leak. The leachate collection and removal system in operation at the facility provides for the collection of all liquids above the primary liner system as well as any that might migrate to the containment and leak detection liner. The design of the units also prevents run-on or the infiltration of precipitation into the secondary containment system. Inspections of the floor areas are routinely performed by Company personnel. 2/

SUMMARY

It is Doe Run's understanding that the above-described structure satisfies all of the technical and operational criteria particular to a tank under EPA and DNR regulations implementing RCRA. Specifically, the structures are designed to adequately support and contain the materials placed in the units, and are equipped with a secondary containment and leak detection liner capable of detecting and containing any materials that may escape the primary liner. Accordingly, the Company maintains that the permit application and the operating permit for the facility should be revised to designate the units as tanks.

Doe Run hereby requests that DNR issue a Class 1 administrative permit modification reflecting this designation. The Company understands that this particular type of permit modification does not require the prior approval of DNR. Doe Run would, however, appreciate DNR's confirmation of this understanding. DNR should regard this letter as that notification required under 40 C.F.R. Part 270.42.

2/ A detailed description of the design and operation of the unit is provided in the Part B application submitted to DNR.

If you have any questions concerning this letter, or if we can provide you with any additional information regarding the design and operation of the materials management unit, please contact Mr. Mike Kearney at 314-626-3406.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Sincerely yours,

Kenneth R. Buckley
General Manager

cc: Mr. James A. Burris, P.E., MODNR - PBRO
Mr. Lyndell L. Harrington, USEPA Region VII
Mr. Walter N. Nowotny, Doe Run - Centerpoint
Mr. Daniel 1. Vornberg, Doe Run - Herculaneum

ATTACHMENT 10

JOHN ASHCROFT
Governor

G. TRACY MEHAN III
Director

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102

July 15, 1992

Mr. Kenneth R. Buckley
General Manager
The Doe Run Company
Buick Resource Recycling Division
Hwy KK
Boss, MO 65440

RE: Renaming Storage Units

Dear Mr. Buckley:

In your letter of May 5, 1992, you requested a Class 1 modification of your RCRA permit, MOD 059200089, renaming the storage units for crushed, wet battery components. These bunkers are currently defined as waste piles. You requested that they be classified as tanks for storage of hazardous wastes.

The department did not evaluate the general description of the units in your letter. The U.S. Environmental Protection Agency (EPA) has proposed regulations changing the designation of these waste pile units to the term "containment building." The proposed regulations also provide a general description of the units in your letter.

Since EPA is proposing a change in the nomenclature, the department is denying your permit modification request at this time. We suggest the request be resubmitted when final action on the federal regulation is taken. If you have any questions, please contact Daniel M. Tschirgi, P.E.

Very truly yours,

DIVISION OF ENVIRONMENTAL QUALITY

David A. Shorr
Director

DAS:dfj

c: Ms. Deborah Kennedy, EPA Region VII RCRA Permits
U.S. EPA, Washington, D.C.
James A Burris, P.E., SERO

ATTACHMENT 11

3500 Iron County Hwy
Mt
Doe Run Resource Recycling
Division

MAY 26 1992

THE DOE RUN
RESOURCE
RECYCLING
DIVISION

May 21, 1992

Mr. James A. Burris, P.E.
MODNR - PBRO
948 Lester Street
Poplar Bluff, MO 63901

Dear Mr. Burris, P.E.:

RE: **The Doe Run Company - Buick Facility**
RCRA Permit No. - MOD 059 200 089

The Buick Resource Recycling Facility (Buick) has requested a Class 1 Permit modification from the Missouri Department of Natural Resources. This letter is intended to satisfy the public notice requirements for Class 1 permit modifications.

Buick recovers lead and other metals from manufacturing residues and scrap materials. Some of these materials are shipped in drums. The proposed modification will allow for construction of a drum shredding device and container stacking system within the container storage area. The revised material handling system will facilitate movement of material to the reverb furnace for processing. The system has the potential to increase the amount of container storage within the storage building.

Additional information may be obtained directly from Mr. Mike Kearney at 314-626-3406. Mr. Frank Dolan is the Project Review Engineer at the Missouri Department of Natural Resources. He can be contacted at 314-751-3176 or by writing in care of the Waste Management Program, P.O. Box 176, Jefferson City, MO 65102.

Very truly yours,

Kenneth R. Buckley
General Manager

ATTACHMENT 12

3,500 IRON
DOE RUN BUICK

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY JUL 27 1992

REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

JUL 24 1992

Kenneth R. Buckley
General Manager
The Doe Run Company
Resource Recycling Division--Buick Facility
Hwy. KK
Boss, MO 65440

JUL 27 1992

Dear Mr. Buckley:

We have reviewed your May 21, 1992 Doe Run letter regarding your Class 1 permit modification request to the Missouri Department of Natural Resources (MDNR). The request was for construction of a drum shredding device and other equipment at your facility. We have also reviewed the March 9 document titled "Material Handling Project, The Doe Run Company, Boss, Missouri," which we received July 9. Based on these documents and the July 8 phone conversation between Mike Kearney of Doe Run and Deborah Kennedy of my staff, we have determined that the drum shredding device performs physical treatment of hazardous waste in a miscellaneous unit, and is therefore subject to regulation under 40 CFR 264 Subpart X. We have also determined that Class 1 is not the appropriate permit modification category for addition of a new hazardous waste management unit; the appropriate category is Class 3.

Although MDNR is the lead agency for regulating your facility's hazardous waste management units, it is not yet authorized to administer provisions of Subpart X. EPA, under its authority, is therefore requiring you to submit a Class 3 permit modification request for the drum shredding device, in accordance with 40 CFR 270.42(c). If you believe the unit meets the criteria for a temporary authorization specified in 40 CFR 270.42(e)(2)(i)(B), you may also request a temporary authorization in accordance with 270.42(e) and explain how the 270.42(e)(2)(i)(B) criteria are met. You must cease any construction or operation of the unit until we make a determination on your permit modification or temporary authorization request.

If you have any questions, please contact Ms. Kennedy at (913) 551-7628.

Sincerely yours,

Robert L. Stewart

for Lyndell L. Harrington, P.E.
Chief, Permits Section
RCRA Branch
Waste Management Division

cc: Mike Kearney, Doe Run
David Freise, MDNR
James A. Burris, MDNR-SERO

RECYCLE
PAPER CONTAINS RECYCLED FIBERS

ATTACHMENT 13

THE DOE RUN COMPANY
RESOURCE RECYCLING DIVISION
BUICK FACILITY

KENNETH R. BUCKLEY
GENERAL MANAGER
314-626-3495

HWY KK
BOSS, MO 65440
314-626-4813 • FAX 314-626-3304

July 28, 1992

Mr. Lyndell L. Harrington
Chief, Permits Section
WSTM Division, RCRA Branch
726 Minnesota Avenue
Kansas City, Kansas 66101

Re: Temporary Authorization 40 CFR 270.42(e)
The Doe Run Company - Buick Facility
EPA ID No. - MOD 059 200 089

Dear Mr. Harrington:

We are in receipt of your letter dated July 24, 1992, concerning the shredder installation at the Buick Resource Recovery Facility.

We continue to believe that the requirements for the recycle of hazardous wastes are limited to requirements for generators, transporters, and storage facilities (see 40 CFR 261.6 (a), (b), & (c)) but not treatment under Subpart X. Spent lead-acid batteries are also treated under a separate category, 40 **C.F.R** 266 Subpart G and have a slightly different group of requirements but battery reclaimation is also excluded from Subpart X regulation. In this case, the drum shredder is merely a step in the recycling process as opposed to the shredders referred to in your letter that are part of non-recycling treatment processes which are regulated. We continue to believe the modification being sought is a Class 1 permit modification as described in 40 **C.F.R** 270.42 Appendix 1 (A)(3) which describes "equipment replacement or upgrading with functionally equivalent components". We respectfully request that you once more review the special regulations afforded recycling before you consider our Temporary Authorization request.

Nevertheless, in deference to your interpretation of the rule please consider this letter as a request for Temporary Authorization as authorized by 40 **C.F.R** 270.42(e) but we preserve our opinion concerning applicability. In consideration of this difference of opinion we hope that review of this application can be made quickly. Based on the common (MODNR and Doe Run) belief that this was a Class 1 modification, the State directed us in a letter dated May 5,

1992 to make the necessary Class 1 public notice.

This request for Temporary Authorization meets the requirements identified in 270.42(e)(2)(i)(B). Information relative to 270.42(e)(3)(ii) (C) through (E) and improved management of hazardous wastes already listed in the facility permit and subsequent modifications is included below.

(e)(3)(ii)(C),(D), and (E) - The original material flow called for dumping drums of dross and baghouse dust, etc. across a ventilated 2 inch screen in the industrial battery section of the Battery Processing Facility building. The volume of material that has been delivered significantly exceeds our original expectations. The number of industrial batteries available is also greater than anticipated and these are occupying a significant volume of our storage space. As the dry material falls through the grate to the bin below, the ventilation system has proven to be inadequate to contain the dust. Another major problem is that a good portion of the material is wedged or fused on the barrels and cannot be dislodged without significant manual labor. The material also needs to be mixed and sampled prior to processing in our industrial furnaces.

The new process involves shredding of the drum and its contents into 2 inch pieces, magnetic separation of ferrous material, and transportation of lead bearing material to one of three destinations. Lead bearing material will be charged: 1.) directly to one the mobile charge bins for feed to the Reverberatory Furnace; 2.) directly to a truck for transport to the Rotary Melter; or 3.) the material can be stored in specially designed, totally enclosed bins. These bins are further designed to be charged directly to the Reverberatory Furnace via a skip hoist. Please refer to process description information documents already in your possession for further information.

The proposed plan addresses each of the (C), (D) and (E) concerns by shredding the drums under a greatly increased ventilation system. In accordance with paragraph:

(C) - it will prevent the disruption of ongoing waste management activities by allowing us to take these materials from our customers and use them as received. We have been turning down materials and storing other materials consuming valuable storage space needed for staging;

(D) - it will enable Doe Run to respond to the sudden and unanticipated increase in the amount of

dross and fume material that is being offered from throughout the United States; and

(E) - it will facilitate changes to protect human health and the environment by reducing workplace lead levels and minimizing the chance for any releases caused by an under designed initial system.

The public notice required by 270.42(e)(2)(iii) is being developed and will be mailed not later than Thursday July 30, 1992.

Thank you for your prompt attention to our request. Please let us know if a personal visit would help to clarify matters. We will initiate the preparation of our Class 3 permit modification immediately.

Please advise if you have questions or need additional information.

Very truly yours,

Kenneth R. Buckley
General Manager

cc: Mr. Danial M. Tschirgi, P.E., MODNR - HWP
Mr. James A. Burris, P.E., MODNR - SERO

THE DOE RUN COMPANY
RESOURCE RECYCLING DIVISION
BUICK FACILITY

KENNETH R. BUCKLEY
GENERAL MANAGER
314-626-3495

HWY KK
BOSS, MO 65440
314-626-4813 • FAX 314-626-3304

Burris

JUL 30 1992

July 28, 1992

Mr. Lyndell L. Harrington
Chief, Permits Section
WSTM Division/RCRA Branch
726 Minnesota Avenue
Kansas City, Kansas 66101

Ref: Your letter of July 24, 1992, regarding our Class I permit modification request to the Missouri Department of Natural Resources (MDNR).

Dear Mr. Harrington:

Please be advised that we have complied with your instructions to cease construction on our $1.4 million shredder project. Unfortunately, this action involves the lay-off of eleven (11) contractor employees. Further, it compromises our ability to support the recycling committment to the State of Missouri and the Nation.

Please be further advised that all equipment has been purchased and is being delivered in support of an August 14, 1992, commissioning date. Our decision to proceed was based on approval by Missouri Department of Natural Resources (MODNR) whom we believed had Air and RCRA authorization. There has been no indication from the U.S. Environmental Protection Agency (EPA) that any problems existed, since an initial communication with MODNR on March 24, 1992.

Attached please find a letter further addressing our position on this subject and your concerns as expressed in your July 24, 1992 letter.

Doe Run is prepared to meet with you in Kansas City at your earliest convenience if this would assist in expeditiously resolving this issue.

Sincerely yours,

Kenneth R. Buckley
General Manager

KRB/jb

Attachment

cc: Mr. Danial M. Tschirgi, P.E., MODNR - HWP
Mr. James A. Burris, P.E., MODNR - SERO

ATTACHMENT 14

Doe Run Resource Recovery

OCT 16 1992

THE DOE RUN COMPANY
RESOURCE RECYCLING DIVISION
BUICK FACILITY

KENNETH R. BUCKLEY
GENERAL MANAGER
314-626-3435

HWY KK
BOSS MO 65440
314-626-[illegible] • FAX 314-626-[illegible]

October 13, 1992

Mr. Lyndell L. Harrington
Chief, Permits Section
WSTM Division/RCRA Branch
726 Minnesota Avenue
Kansas City, KS 66101

Dear Mr. Harrington:

RE: The Doe Run Company - Buick Resource Recovery Facility RCRA Permit, MOD 059 200 089

Attached is the quarterly report required by Special Permit Condition VII.D.1.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Please advise if you have questions or need additional information.

Very truly yours,

Kenneth R. Buckley
General Manager

cc: Mr. Ed Sadler, MODNR - WMP
Mr. Edwin Knight, MODNR - SERO

THE DOE RUN COMPANY
Buick Smelter
MOD 059 200 089

RCRA QUARTERLY REPORT
3rd Quarter 1992

1. Impoundment C Activities.

Seventy two loads of asphalt and soil from the parking lot repair activity were placed in the impoundment from July 27-31.

2. Impoundment A Activities.

The floating pump continues to be used to de-water the impoundment. This activity will allow the sediments to begin the drying process.

3. SWMU Number 40 Activities.

There were no activities during the quarter. Investigative activities associated in this SWMU are proposed to be incorporated into the RFI Workplan.

4. RCRA Facility Investigation Workplan

The approved RFI workplan was received on August 28, 1992. By letter dated September 11, 1992 Doe Run "took exception" to two of the modifications added by EPA/MODNR. Fluor-Daniel Engineering in Greenville, SC has been issued a purchase order to prepare a complete cost estimate, schedule and begin implementation of the RFI Workplan.

5. Drum Shredder

Doe Run received your July 27 letter determining that the drum shredder was a Subpart X unit and needed a Class 3 permit modification. All construction activities were suspended as "ordered". An application for "temporary authorization" was submitted on July 28, 1992. On July 31, 1992 two additional drawings were sent to EPA in order to facilitate their evaluation of the temporary authorization. The temporary authorization was received on August 10, 1992. Fluor-Daniel Engineering in Greenville, SC was given verbal authorization on August 18th and has subsequently been issued a purchase order to proceed with preparation of information and documents necessary for the Class 3 permit modification. See the attached proposal. The proposed schedule shows permit submission in mid November. Construction was completed and the unit accepted by Doe Run on September 28, 1992. The August Progress Report is attached. A Final Report in being prepared. As with any new piece of equipment

start-up has not been without problems. Additional information will be included in the next quarterly report. As of this date only "non-hazardous" materials have been processed through the unit.

6. Land Disposal Regulations (LDR)

EPA was advised by letter on July 24, 1992 that Doe Run intends to seek a case-by-case capacity variance from the LDR rules published June 26, 1992 in the Federal Register. The restriction will likely be made mute by the "Containment Building" regulations which were published in the Federal Register on August 17, 1992. Fluor-Daniel Engineering in Greenville, SC has been issued a purchase order to prepare and submit the required Class 2 permit modification.

7. Notice of Violation

A Notice of Violation (NOV) was received from EPA on September 21, 1992. The NOV alleges violations of inadequate sample numbers, failure to use a sample grid, improper sampling methods and failure to demonstrate clean-up standards. A formal response is planned and a follow-up sampling event has already been scheduled for October 26, 1992.

ATTACHMENT 15

THE DOE RUN COMPANY
RESOURCE RECYCLING DIVISION
BUICK FACILITY

JUL 29 1992

KENNETH R BUCKLEY
GENERAL MANAGER
314-626-3435

HC 1, Box 1395, Highway KK
Boss, MO 65440
314-626-3435 • FAX 314-626-3436

VIA FEDERAL EXPRESS July 24, 1992

Environmental Protection Agency
OSW - Capacity Programs Branch
2800 Crystal Drive
Arlington, VA 22202

Dear Sir:

This letter is intended to notify EPA that the Buick Facility (Buick) is a secondary lead smelter and intends to seek a case-by-case capacity variance extension from the Land Disposal Restrictions as published in the Federal Register on June 26, 1992. The following information is provided per the above referenced notice:

Name:	The Doe Run Company Buick Resource Recycling Facility
Mailing Address:	HC 1, Box 1395, Highway KK
Location:	Boss, MO 65440
EPA ID Number:	MOD 059 200 089

Description of waste streams: Buick is a Part B permitted facility with the following waste streams: 1.) "broken" lead acid batteries prior to further processing in the Breaking, Desulfurization and Crystallization (BDC) unit, 2.) battery paste from the BDC unit prior to processing through the reverberatory (reverb) furnace, 3.) separator materials from the BDC unit which are processed through the reverb furnace or thr Rotary Melter and 4.) grids and posts from the BDC unit which are further processed through the reverb furnace and the rotary melter.

Please advise if you have questions or need additional information.

Very truly yours

Kenneth R. Buckley
General Manager

cc: Mr. Lindell L. Harrington, USEPA Region VII
Mr. Ed Sadler, MODNR - Hazardous Waste Program
Mr. James A. Burris, P.E., MODNR - SERO

THE DOE RUN COMPANY
RESOURCE RECYCLING DIVISION
BUICK FACILITY

JUL 30 1992

KENNETH R. BUCKLEY
GENERAL MANAGER
314-626-3435

HWY KK
BOX 90, MO 65440
314-[illegible] • FAX 314-626-[illegible]

VIA HAND DELIVERY

July 27, 1992

Environmental Protection Agency
OSW - Capacity Programs Branch
2800 Crystal Drive
Arlington, VA 22202

Dear Sir:

RE: The Doe Run Company
Buick Resource Recycling Facility
EPA ID Number: MOD 059 200 089

This letter supplements the July 24, 1992 notification submitted by Federal Express that the Buick lead smelter intends to seek a case-by-case capacity variance extension from the Land Disposal Restrictions as published in the Federal Register on June 26, 1992.

The previously submitted information specifically addressed the waste streams currently being handled in the "permitted" waste piles. The "containment building" rules appear to allow interim status for storage of dry/containerized hazardous waste material in the facility's Covered Material Storage Building. This unit is not currently handling hazardous waste materials but is used for storage of other non-regulated lead bearing materials pending processing in one of the processing facilities

The purpose of this supplement is to specifically identify the Covered Material Storage Building and its eight bins as hazardous waste "containment building" units. The waste streams to be stored would include the following hazardous waste materials currently permitted:

1. D008 lead contaminated wastes

2. D008/D004/D006 - lead contaminated wastes which are also characteristically toxic for arsenic and/or cadmium

3. K002 - Lead contaminated waste water treatment plant sludges from the production of chrome yellow and orange pigments,

4. K003 - Lead contaminated waste water treatment plant sludges from the production of molybdate orange pigments,

5. K046 - Waste water treatment plant sludges from the manufacture, formulation and loading of lead based initiating compounds,

The hazardous waste materials would be stored temporarily ahead of processing in the Buick secondary lead smelter. The bins would be used only for storage of dry or non-leaking material. Hazardous wastes containing free liquids would not be placed in these bins.

Please advise if you have questions or need additional information.

Very truly yours,

Kenneth R. Buckley
General Manager

cc: Mr. Lindell L. Harrington, USEPA Region VII
Mr. Ed Sadler, MODNR - Hazardous Waste Program
Mr. James A. Burris, P.E., MODNR - SERO

ATTACHMENT 16

DOE RUN
RESOURCE
RECYCLING
DIVISION

AL
FYI

MAY 18 1992

May 15, 1992

Mr. James A. Burris, P.E.
Regional Administrator
MODNR - Poplar Bluff RO
P. O. Box 1420
Poplar Bluff, MO 63901

Dear Mr. Burris:

RE: **The Doe Run Company - Resource Recycling Division**
Buick Facility, RCRA Permit No. - MOD 059 200 089

Please be advised that a leak has been detected in the battery bunker. A very minor drip was first observed on May 8th, Friday afternoon. By Monday the leak had increased slightly so that a quantity measurement was necessary.

The leak test was initiated at 8:00 am and concluded at 3:00 pm with the following results: pH = 6.9 S.I.U., electrical conductivity = >12000 uS and flow = 6.26 liters per day. A purchase order was already in-process to repair the battery bunker floor in another area. The purchase order has been expanded to include the work required to repair the new area.

Please call me at 314-626-3406 if you have questions or need additional information.

Very truly yours,

W. M. Kearney

W. Michael Kearney
Health & Environmental Manager

cc: Mr Frank J. Dolan, P.E., MODNR - HWP

3.500 IRON County MO
DOE RUN RESOURCE RECYCLING
D 3.500

MAY - 4 1992

THE DOE RUN COMPANY
RESOURCE RECYCLING DIVISION
BUICK FACILITY

KENNETH R. BUCKLEY
GENERAL MANAGER
314-626-3435

HWY KK
BOSS MO 65440
314-626-4813 • FAX 314-626-3004

May 1, 1992

Mr. Nicholas A. Di Pasquale
MODNR - Hazardous Waste Program
P.O. Box 176
Jefferson City, MO 65102

RE: The Doe Run Company - Resource Recycling Division
Buick Facility, RCRA Permit No. - MOD 059 200 089

Dear Mr. Di Pasquale:

Special Condition III.C.3. of the above permit requires an annual report from an independent registered professional engineer on the condition of the flooring of the battery bunkers, the paste storage areas and the dry pile storage area. The engineer selected by the permittee shall be approved by the department.

Mr. William G. Huffman, P.E., of Route 3 Box 134, Salem, MO 65560, has been selected by Doe Run to provide the report. Please indicate your approval by signing and returning this letter or by any other means of your choosing.

Very truly yours,

Kenneth R. Buckley
General Manager

Doe Run's utilization of Mr. William G. Huffman, P.E., for the above stated purpose is approved.

Signature _____

Title _____

Date _____

cc: Mr. James A. Burris, P.E., MODNR - PBRO

3,500 IRON COUNTY MO
DOE RUN RESOURCE RECYCLING DIVISION
AJ
FYI
MAY 11 1992

THE DOE RUN COMPANY
RESOURCE RECYCLING DIVISION
BUICK FACILITY

HCR KK
BOSS MO 65440
[illegible] • FAX [illegible]

May 6, 1992

Mr. Frank J. Dolan, P.E.
MODNR - Hazardous Waste Program
P.O. Box 176
Jefferson City, MO 65102

RE: The Doe Run Company - Resource Recycling Division
Buick Facility, RCRA Permit No. - MOD 059 200 089

Dear Frank:

This letter confirms our telephone conversation of May 5, 1992 regarding inspection of the floors at the permitted storage areas. Arrangements have been made with an independent registered Professional Engineer to inspect the battery bunker floor, the paste bunker floor, and the dry pile storage area at the Rotary Melter during May. A report will be submitted to MODNR in June. The north battery storage area floor, an area approximately one-fourth of the battery bunker, is covered with separator material and unable to be inspected at this time. The area will be inspected after the stored material is reduced to a manageable level through normal production. The report to MODNR will not exceed 180 days.

Use of the battery bunker was initiated in early July 1991. Battery breaking and storage of broken batteries was limited to the south half of the bunker. The Reverberatory Furnace was not completed until late September. During the interim period, separators, and ebonite were stored in the north-east battery storage area while paste was stored in the paste bunker.

Since start-up of the reverb furnace, extra efforts have been made to process the stockpiled materials along with current production. Despite these efforts, there remains a large volume of separator material in the north-east portion of the bunker. This material will inhibit inspection of this area for a short period. The required inspection will be conducted as early as possible and will in no case exceed 90

days. Consumption of separator materials will substantially increase with addition of oxygen to the reverb furnace. The oxygen addition modification will be completed by the end of May.

Pleae advise if you have questions or need additional information.

Very truly yours,

W. M. Kearney

W. Michael Kearney
Health & Environmental Manager

cc: Mr. James A, Burris, P.E. - MODNR PBRO

5000 IRON County
Doe Run Buick R.R.
D.U

JOHN ASHCROFT
Governor

G. TRACY MEHAN III
Director

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102

MAY 18 1992

May 14, 1992

Mr. W. Michael Kearney
The Doe Run Company
Buick Resource Recycling Division
Hwy KK
Boss, MO 65440

RE: Engineer's Inspection of Waste Pile Storage

Dear Mr. Kearney:

In your letter of May 1, 1992, you requested approval of Mr. William G. Huffman, P.E., as inspector of flooring in the battery bunker, paste bunker, and the dry rotary melter bunker. This letter serves as standing approval for an engineer in good standing with the Board of Architects, Engineers, and Land Surveyors, who neither is employed by the Doe Run Company nor has financial concern in the Doe Run Company. This approval is necessary for Doe Run to comply with Special Permit Condition III.C.3.

You discussed a problem of timing for the first annual floor inspection with Frank J. Dolan, P.E., the project review engineer. The department is willing to allow the shortest reasonable amount of time, not to exceed one hundred eighty (180) days, to remove the materials in those waste piles through normal production.

If you have any questions, please contact Frank J. Dolan, P.E.

Sincerely,

HAZARDOUS WASTE PROGRAM

Nicholas A. Di Pasquale
Director

NAD:fdj

c: James A Burris, P.E., MDNR Southeast Regional Office
Ms. Deborah Kennedy, USEPA Region VII RCRA Permits

Missouri State Parks 75th Anniversary

Recycled Paper

1 of 3
3,500 LEAD CO. N.W
Doe Run RESOURCE RECOVERY

OCT 16 1992

THE DOE RUN COMPANY
RESOURCE RECYCLING DIVISION
BUICK FACILITY

KENNETH R. BUCKLEY
GENERAL MANAGER
314-626-3495

HWY KK
BOSS, MO 65440
314-626-4811 • FAX 314-626-3113

October 14, 1992

Mr. Ed Sadler
MODNR - Hazardous Waste Program
P.O. Box 176
Jefferson City, MO 65102

RE: The Doe Run Company - Resource Recycling Division
Buick Facility, RCRA Permit No. - MOD 059 200 089

Dear Mr. Sadler:

Enclosed is the balance of the annual report required by Special Permit Condition III.C.3 for the above referenced permit. By earlier letter your predecessor had authorized a 180 day delay to complete the inspection of battery bunker "A". The floor inspection was completed by Mr. William G. Huffman on September 28, 199.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Please contact Mr. Mike Kearney at 314-626-3406 if you have questions or need additional information.

Very truly yours,

Kenneth R. Buckley
General Manager

cc: Mr. Edwin D. Knight, MODNR - SERO
Mr. Lyndell L. Harrington, USEPA - Region VII (3)

WM. G. HUFFMAN
CONSULTING ENGINEERS

Rt. 3, Box 134
Salem, MO 65560

Ph. (314) 729-7133
FAX (314) 729-7134

September 28, 1992

Mr. Kenneth R. Buckley
The Doe Run Company
Resource Recycling Division
HC 1 Box 1395
HWY KK
Boss, MO 65540

Dear Mr. Buckley:

I have now completed the inspection of the Battery Bunker, Paste Storage Bunker and Rotary Melter Bunker. This inspection consisted of a visual inspection of the asphaltic floor coating system.

This inspection was made to comply with Special Permit Condition III.C.3 of the Buick Facility RCRA Permit. The main purpose of this inspection is to determine if the coating system is still in tact so that it may serve as protection for the concrete floor beneath.

On page 2 of the previously submitted report (dated June 22, 1992) it was noted that BATTERY AREA "A" had not been inspected at that time. On September 16, 1992, the inspection of BATTERY AREA "A" was completed. This area appears to be in good condition with no noticeable defects in the asphaltic floor coating system. The junction of the floor and walls appeared to be sealed and showed no signs of differential settlement in the structure. Drainage of the floor to the collection point appeared to be per design.

Mr. Buckley, I believe this completes the inspection of the above mentioned areas. If you have any questions, please contact me.

Sincerely,

Wm. G. Huffman

Wm. G. Huffman, P.E.